

COMPUTERWORLD

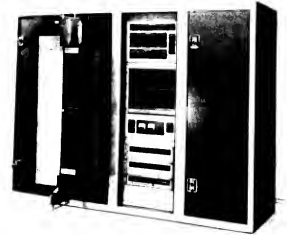
THE NEWSWEEKLY FOR THE COMPUTER COMMUNITY

Weekly Newspaper. Second-class postage paid at Boston, Mass.

Vol III No 14

April 9, 1969

Price: \$9/year



Lockheed's plug-for-plug compatible mass memory.

Inquiry May Be Pointless Unless FCC Hurries: Bema

By a CW Staff Writer
WASHINGTON, D.C. — Unless the Federal Communications Commission acts quickly on the question of common carriers offering data processing services, "the issue is in serious danger of being resolved by events in a manner adverse to the stated interests, both public and private, of those responding" to the FCC's inquiry.

The warning was carried in a letter to the FCC from the Business Equipment Manufacturers Association, a party to the inquiry begun in November 1966. Noting that several common carriers have set up data processing subsidiaries, Bema asked the FCC to gather information on this development from each of the carriers.

"Specifically, we believe that on a priority basis each carrier, or carrier subsidiary, should be requested to respond within a specified time in writing as to its present or contemplated activities that relate to the provision of data or information processes."

ing services," the Bema letter said.

The letter noted that Bema already was on record as opposing allowing common carriers to enter the field because of "the inherent potential for unfair competition."

Conversational Mode Is Added To IBM's RJE

WHITE PLAINS, N.Y. — Conversational remote job entry (CRJE), IBM's latest addition to OS/360, is for use under multi-programming with a variable number of tasks (MVT) or its fixed-number brother, MFT.

CRJE supports only IBM 2740, 2741, and 1050 terminals as remote terminal devices. IBM claims 90% flagging of PL/I and Fortran syntax errors during compilation. Conversation stops when the operator releases CRJE, and the terminal becomes strictly an input/output device for data generated by the program, an IBM spokesman said.

Programs can be stored on disk at the central computer in either source or object form. Remote data for object program use is treated as if entered from a local card reader and is not checked for correctness, he said.

Programs can be deleted from mass storage only by the console operator, but he can be directed to do so by a message from the remote terminal. Likewise, only he can alter queue priorities.

CRJE does not support a re-

(Continued on Page 11)

By Peter L. Briggs
CW Staff Writer
LOS ANGELES — IBM 360 and Univac 494 users can now obtain large capacity storage (extended main memory) of up to two million bytes and an access time of 3.2 microseconds per byte, according to Lockheed Electronics Co.

Slowed Down for S/360s

The unit can operate at 2 microseconds per byte, Lockheed said, but the interface for the S/360 requires a minimum time of 3.2 microseconds. The unit is plug-for-plug compatible with the S/360 and can be used on any model 50 or larger with any core size, the company said.

The device is available in one-half, one-, and two-million-byte configurations. Lockheed said, and can be freely interfaced with either the Univac or S/360 machines.

Price Very Competitive

At press time, the company was in the process of setting final prices, but the unit will be available both for lease and for purchase with optional maintenance agreements at a price significantly lower than that currently available from IBM for its unit, Lockheed said.

The IBM 2261 LCS operates at 8 microseconds per byte. The Lockheed device is therefore stated to be about three times faster on the S/360 and four times faster on the Univac machine.

The company expects users to make use of this type of device in any situation where large

systems require more main memory, where large files are to be kept in the machine's memory

for high-speed access, or where on-line files are updated and
(Continued on Page 11)

Competitive Maintenance Bids Could Save \$: Report

WASHINGTON, D.C. — Savings of almost \$10 million per year might result from the use of competitive bidding within the General Services Administration for the acquisition of maintenance service on its computer equipment, according to a recent survey completed for the GSA by Boston Computer Group.

"The data processing industry, including the government with 30% of the purchased equipment in the U.S., does not buy maintenance, but receives it." This conclusion is based on the fact that the major portion of the industry still suffers under the rental syndrome," the report states. In the commercial area, very little of the maintenance is performed by the manufacturers, but the percentage is much higher within the GSA. The government leads the industry in the use of in-house maintenance; however, the trend is away from this rather than toward it. About one-third of the installations previously using in-house maintenance were planning to discontinue the service, the report found.

Personnel Demand
The report found only 30,000 maintenance technicians employed by manufacturers and an

additional 1500 by independents, further reinforcing reports on the shortage of personnel. Such personnel are expensive to train (\$8000 to \$12,000 over three to four-month period), and their skills are not generally transferable between vendors, the report said.

Maintenance Effectiveness

"The percentage of useful time available" is the most popular measure of maintenance, but the report suggests several other possible techniques to better solve the problem. Nine factors should be measured including system need and demand; usage; by components and by system; system reliability; time needed for repairs; number and frequency of failures; preventive maintenance needed; performance; redundancy of system and components; and extent of user involvement.

Copies of the publication, "Maintenance of ADP Equipment: A Survey to Identify, Analyze, and Evaluate Alternative Methods," may be seen in Room 7604, Business Services Center, GSA, 7th and D Sts., Washington, D.C. GSA will make Xerox copies of the study available for \$150.

Less Costly Version of 1108 Introduced

By A. B. Williams
CW Staff Writer
PHILADELPHIA — Univac provided a small surprise last week for a world which has been expecting a bigger, faster 1108. The company announced a less expensive, somewhat slower version named the 1106.

Pricewise, it is close to the IBM 360/50, but its performance, based on claimed speed and channel specifications, might make it a closer competitor of the 360/65.

This is not a small machine. Memory is available from 65K 36-bit words to 262K. Cycle time is 1.5 microseconds; add time is 1.5 microseconds per word, with a double-precision, fixed-point add taking 3.167



Univac's new 1106 system.

On the Inside

System Stores, Retriever Data in Plain English

— Page 16
Is ACM Membership Really a Bargain? — Page 27

Applications	4	10
Editorials	8	
Education	5	
Financial	19	
New Products	6	
New Registrations	22	
Notes	6	
Ware	16	

5 Time-Sharing Services To Be Evaluated by NIRI

SANTA MONICA The National Information Research Institute (NIRI) has contracted with five time-share services for comprehensive evaluation at its user-oriented symposium on "Comparative Test and Evaluation of Time-Sharing and Remote EDP Services," to be held May 26-27 in Philadelphia.

Dr. Ernest J. Schubert, NIRI president, said all five of the services are nationwide, each offering its subscribers hook-ups to regional centers. The services are: Allen-Babcock (IBM 360/50), Call-A-Computer (GE 235), Comshare Southern (SDS 940), ITT (IBM 360/50), and Tymshare (SDS 940).

The symposium program will be tailored primarily for the businessman, administrator, or professional person who is considering the pros and cons of time-sharing services, or who has decided to subscribe to some service and is in the process of evaluating a number of possibilities to determine which one is best suited to his particular needs.

Legal Needs

A feature of the program will be an analysis of the legal aspects of EDP services from the standpoint of a nonexpert user. This discussion will focus attention on some of the obstacles now standing in the way of a standard contract for time-share services, which could make it easier for users to be assured that advertised performance will receive adequate support in areas such as specified overall system reliability, audit trail, and file security.

In keeping with its policy of making a commitment to the interests of users, as distinguished from manufacturers and service vendors, NIRI will pay for all services at commercial rates. This promotes objectivity in conducting and evaluating performance of the various services being tested and permits NIRI to evaluate other user interface aspects of time-sharing services such as contracts, specifications, and documentation, Dr. Schubert said.

The NIRI staff has developed a comprehensive set of 12 benchmark tests in Fortran and Basic to demonstrate generic operations in business data processing, file management, and scientific computations.

The benchmark tests will be run on each of the five services before

the symposium and the results will be published as Volume III of a "Comparative Test and Evaluation of Time-Sharing and Remote EDP Services." The new volume will be available on the first day of the symposium.

Registration fee for the symposium is \$300, which includes luncheons and a copy of the symposium proceedings. Further information about the symposium may be obtained from Ana Cabo, National Information Research Institute, P.O. Box 3356, Santa Monica, Calif. 90403.

NIRI is a nonprofit institution dedicated to research, education, and certification in all areas of data processing.



New Mini in Town

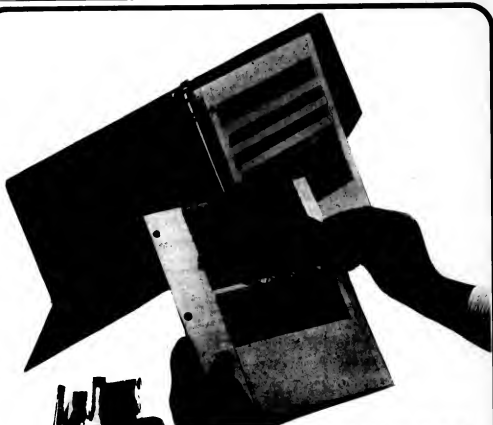
A new mini computer, the Tempo 1 by Tempo Computers of Orange, Calif., neatly packages the central processor, a 4K by 16-bit word memory, and several input/output controllers into a 10-1/2 in. by 17-1/2 in. by 24 in. module. In addition to the ASR 33 Teletype, the computer can be ordered with magnetic tape drives, disk drive, card reader, paper tape punch and reader, modem interface, interval timer, and digital multiplexor, the company said.

ITT Data Opens Service Centers In 4 New Areas

PARAMUS, N.J. - ITT Data Services has expanded its computer time-sharing service network to four additional cities: Denver; Houston; Pittsburgh; and San Diego, Calif.

"The four centers are the newest links in the nationwide data processing service network being built under our multimillion dollar expansion program," said Robert A. Leonard, president of the ITT division.

Addition of the new centers brings to 16 the centers currently operated by the ITT division in the U.S. Each of the new centers is staffed by both technical and sales personnel.



FOR STORAGE AND RETRIEVAL OF MICROFICHE, APERTURE AND TAB CARDS

ITS INDEX SHEETS SPECIALLY CONSTRUCTED ARE PATENTED
ITS ACID FREE PAPER PROTECTS THE SAFETY AND LONG LIFE OF FILM NEGATIVES
ITS RIGIDITY IS IDEAL FOR BEST TOP REFERENCE
IT HAS THE CAPACITY TO HOUSE 150 WORKFOLDS, 100 APERTURE OR TAB CARDS
ITS VISIBILITY CHARACTERISTICS FOSTERS FAST RETRIEVAL

A new, ultra convenient, patented system for storage and retrieval of microfiche, aperture and data tab cards, sets new industry standards of portability, visibility and retrievability in the housing of photographic miniaturized information. The newest member of the Data-family by Boorum & Pease comprises of REST-BAK assal-type three ring binder, available in three colors, black, red, azure blue, with special die-cut sheets made with acid-free paper. Write for catalog sheet on VIZ-A-FICHE™ SYSTEM.



everything
about

VIZ(A)FICHE™ SYSTEM
is extraordinary

Standard

BOORUM
& PEASE

General Offices:
84 Hudson Avenue, Brooklyn, N.Y. 11201
Boston 02110: 89 Summer Street
Chicago 60607: 310 W. Park Street
Sydney 12021: 128 Spencer Street
New York 10013: 32 North Street

DATA COMMUNICATION IDEAS?

Talk to Tally

How about a low cost computer compatible mag tape terminal? Tally's got the answer: the Model 4031 Magnetic Tape Send/Receive Terminal. Using V₁ tape, this system independently sends or receives data with any other Tally terminal, freeing the computer from time consuming transmission tasks. Select 200, 556, or 800 cpi. Features unattended answering and automatic error correction.

Write or call Tally, 1510 Mercer Street, Seattle, Washington 98108. Phone: 366-626-6765.

Fast, Low Cost Computer Can Be Expanded to 56K

By a CW Staff Writer
LONDON - An inexpensive, fast (1.5-microsecond add time), 16-bit word processor, with 300,000-word-per-second fixed-head disks has been announced by Computer Technology Ltd. The system, called Modular One, is designed for process and production control, message switching and communications, and for general information acquisition and analysis.

The processor cycles a 16-bit word in 750 nanoseconds, but by overlapping accesses to independent storage modules, the time is effectively reduced to 350 nanoseconds. The company claims performance of up to one million instructions per second. The instruction repertoire numbers over 200, the company said.

Main storage is in independent 8K modules, up to 56K, any pair or group of which can be connected to provide multiple transfers simultaneous with processing, a spokesman said.

Peripherals include the disks, which have an average access time of 17 millisecond, he said.

The basic drive has a one-million-word capacity, with 10- to 40-million-word units available for applications which require more storage. The magnetic tapes are 9-track (IBM-compatible), 36K or 60K words-per-second transfer units, he said. Communications are based around Teletype 10 cps terminals; graphics around programmed point-mode oscilloscopes. Real-time clocks and analog-to-digital conversion units are also available.

Manufacturer-supplied software includes Symbol (a macro assembler) and a Fortran compiler. There is a terminal-addressable executive for task performance, user communications, storage and peripheral management, program loading and filing, and multiprogramming administration.

A Modular One processor costs £4900 (about \$11,800). Each 8K of direct storage costs £6800 (\$16,300), plus interface channels at £450 each. Peripheral multiplexors (each of which provides 32 channel positions) go for £1800.

A NEW GENERAL PURPOSE PAYROLL AT 1/4th USUAL COST...ALL STANDARD FEATURES...PLUS

Minimum Computer Equipment Configuration -

- IBM System 360 Model 30 or above
- 32K Core Including Supervisor
- Either Disk or Tape Oriented
- Disk May be Either 2311 or 2314
- 3 Tape Drives for Totally Tape Oriented System

A Multiple Company Service Payroll with Complete Flexibility for Reporting Regular Time, Overtime, Shift Premium, and Up to 8 Other Company Defined Payments. Extensive Tax Calculations

PAY PERIODS - Weekly, Bi-Weekly, Semi-Monthly, Monthly

ACCUMULATION - By Quarter and Year-to-Date

OTHER FEATURES - Includes Multiple Checks and Automatic Deposits. Payroll and Labor Distribution from Same Input.

EXTENSIVE PERSONNEL INFORMATION - For Ready Retrieval TOTAL PRICE - \$4500

INCLUDES -

- Complete Systems and Programming Documentation
- On-Site Customer Orientation & Instruction
- 1 Full Week Installation Assistance if Required
- 90 Day Guarantee Against Program or System Errors
- One Year Systems Maintenance Optional - \$800

AVAILABLE - Delivery and Installation 60-90 Days from Contract



For Further Information Write or Call
GENERAL COMPUTER SERVICES, INC.
HUNTSVILLE INDUSTRIAL CENTER
P.O. Box 4163
Huntsville, Alabama 35802
(205) 539-8492

SOFTWARE CLEARING HOUSE

If you want to sell proprietary software programs
OR

You are looking for software programs
USE

A professional EDP software clearing house

Contact

AUTOMATED INFORMATION SYSTEMS, INC.

BOX 304

NEEDHAM HEIGHTS 94, MASS. 02194

617-449-2220

Branches in Springfield, Mass. and Ridgewood, New Jersey

COMPUTER LEASING

Our Financial Services Division can offer you significant cash savings through a profitable purchase-leaseback arrangement on your IBM System/360.

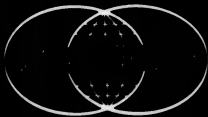
Send your systems configurations to Mr. Michael Creedon, Vice President, for immediate analysis and evaluation. Or phone him at 212-758-6600.

Commission Brokers Invited

FINANCIAL SERVICES DIVISION

dis Diversified Data Services and Sciences Inc.
690 Madison Avenue • New York, New York 10021

COMPUTER SYSTEMS & PUNCHED CARD EQUIPMENT BOUGHT AND SOLD



**INTERNATIONAL
COMPUTER
EQUIPMENT, INC.**

Corporate Headquarters.

1231 - 25th St. N.W., Washington, D.C. 20037

Tel. 202/293-3910

Offices:

Baltimore, Md. 301/539-5188

Los Angeles, Calif. 213 542-1501

San Francisco, Calif. 415 626-7157

Brochure on Request



Technicians make final checks of the instrumentation, above, then race driver Darrel Dieringer, left, prepares to make a test run. Data from the sensors is transmitted to the computer by radio while the run is underway.

Mobile Real-Time System Gets Test Data by Radio

AKRON, Ohio — Tire, car, and driver performance are being computer-evaluated on-line for racing and stock cars by the Goodyear Tire & Rubber Co. Using information from sensors located around the car, within the tires, and on the driver himself, a mobile computer in a van analyzes the data and produces graphs and charts showing car and driver performance on each section of the track. Detailed information about suspension control, driver stability, and vehicle stability are correlated to produce these performance figures.

"By recording information while the tires are actually in use, the mobile laboratory gives us data that has never been available to tire engineers before," said Jack A. Davison, manager of tire-design research. "By this method we can study the relationship between tires, cars, and drivers, and knowing this, tire engineers will have a better understanding in the development of a tire."

The data collected within the

car is transmitted via radio to the lab. Such items as tire temperature and forces affecting the tire, revolution rates, dynamic loads applied to both tires and suspensions, car speeds and engine speeds, and the driver's heartbeat, respiration, and reactions are collected.

"We also obtain important information on the conditions under which the tires, vehicle, and driver operate. This is very important to us in supplementing driver reactions after he has tested the tires as well as the laboratory results when design testing is completed," Davison said. This type of analysis can lead to much safer tires for ordinary road use as well as track use, therefore saving more lives and reducing driver inconvenience."

CRT Unit Puts Governor On-Line

OLYMPIA, Wash. — When Gov. Daniel J. Evans wants to know the current status of a proposed law, he just types a message to a computer.

CHICAGO — A computer is being used to create an insurance policy that doesn't really exist until someone buys it.

The key is a new concept called Comp-U-Term which permits each prospective life insurance buyer to design his own, one-of-a-kind policy. Until the prospect actually buys a policy, it remains only one of an infinite number of proposals Comp-U-Term can generate.

The tailored insurance concept was introduced last fall by Continental Assurance Co. and runs on an IBM 360/50. Since then, some 350 requests for proposals have been arriving each week. More than \$13 million in Comp-U-Term coverage has been applied for.

"Comp-U-Term was developed so that term insurance buyers can fashion a policy to fit their needs rather than bend those needs to fit the limits of 'packaged policies,'" according to David G. Scott, president of Continental.

"This concept breaks all the traditions of the life insurance business by doing away with the standard rate book and replacing it with a fluid structure that can be different in each instance."

Herbert DeFrenge, executive vice-president and originator of the concept, said the company devoted six and a half man-years of actuarial and programming effort to develop Comp-U-Term. Under the plan, he said, agents can specify for each prospective buyer such factors as length of term, premium and benefit structure, convertibility, renewability, waiver of premium, and accidental death options.

This data is sent to the computer center here on a special program request form. It includes some 25 variable factors which the agent may adjust in designing a customized policy. For example, a buyer may specify that coverage benefits in his policy decrease penny-for-penny with his mortgage liability. Or, on an ascending scale, a buyer can call for increase in life coverage at the same pace as business or other responsibilities are expected to increase.

"And if a prospect wishes," he

Gov. Evans has a visual display terminal in his executive office here. The unit can provide him with the status of any of the approximately 3000 bills introduced in each session of the state legislature.

The governor can ask the state's IBM 360/50 for the name of a bill's sponsor, its date of introduction, amendments, the committee to which it was referred, its status in committee, and other facts.

Nine other IBM 2260 terminals previously installed in the State Senate and House of Representatives give the state legislators the same instant access.

Along with the "instant replay" capability, the computer provides each legislator with a computer printout every morning showing the progress of all bills he has sponsored.

continued, "he may have almost any combination of ascending and descending coverage that accommodates his requirements." DeFrenge said there is virtually no limit to the number of proposals which can be generated by the computer. Each change in request data triggers a new proposal which can be produced in about 15 seconds.

This type of service would not be possible using conventional methods of proposal preparation, he said, citing one instance in which the company made 20 different proposals in one week for a client seeking \$2 million coverage for a period of four years. Without Comp-U-Term it would have taken months to prepare the proposals.

50,000 Railway Tank Cars Tracked by EDP System

CHICAGO — How do you keep precise track of the location, condition, and availability of more than 50,000 railroad tank cars, each of which may be anywhere in the United States served by rail lines?

The answer, as officials of Union Tank Car Co. see it, rests with a computer-aided fleet management system recently in-



Printouts tell the company the location, condition, and availability of its 50,000 tank cars.

stalled by the company. The electronic control system gives the company the ability to provide overnight response to inquiries on car availability through the use of an IBM 360/30, according to J.W. Van Gorkom, company president.

"Service is the basis of successful operations in the leasing business," Van Gorkom said. "We are able to provide service by replying to customer inquiries on a 24-hour basis."

The fleet management system, according to W.J.S. Ellis, director of corporate systems and procedures, is the first phase of Union Tank's integrated management information system, which will be completed in late 1969. The system is dubbed Unipar, for Union information processing and retrieval.

"In brief," Ellis said, "Unipar consolidates our fleet records formerly maintained by several different departments."

"When a status inquiry comes in from a sales office, the computer instantly provides the type, and location of cars available for customer use. The net result is faster, more efficient service for the customer."

System Will Help Count 20 Million Chickens Before They're Hatched

By a CW Staff Writer
LONDON — Thornbors, believed to be the largest producers of egg-laying poultry in the world, with a production target of 20 million day-old chicks this year, has ordered an IBM 360/50 computer to help count its chickens before they are hatched.

The computer will help Thornbors of Nytholmrolyd, Halifax, England, to continue to improve in advance the right quantity of the right kind of chickens produced at the right time. This accurate forecasting has helped to establish them as a world leader in breeding and production of chickens for egg production. The computer will also be used in connection with large-scale sheep and pig-breeding programs. The 1901A will replace an existing 8038 computer.

£200,000 on Research

Thornbors spends over £200,000 annually on breeding and other research to produce the best possible egg-laying strains.

Each year some 100,000 cross-

bred hens are tested on cooperating farms throughout the country, covering all types of terrain and environments, and recorded for all the important economic factors (for instance, egg production, egg size, feed consumption, body size, and livability).

As these chickens are recorded either individually or in small groups of three to four, there is obviously a tremendous number of pieces of information to be handled. Summaries of the records are required on short notice for the selection of both individual and whole varieties.

Sheep Breeding

Thornbors' sheep-breeding program has two major objectives, namely the production of male and female lines for commercial sale. Development of the male line, in which growth rate and carcass quality are of primary importance, is carried out by means of progeny testing on selected farms, and it is expected that approximately 100 rams will be tested this year.



COMPUTERWORLD
THE NEWSMAGAZINE FOR THE COMPUTER COMMUNITY

TM Reg. U.S. Pat. Off.

Weekly Newspaper — Second Class Postage Paid at Boston, Mass. Published every Wednesday by COMPUTERWORLD, INC., 60 Austin St., Newton, Mass. 02150. Telephone: (617) 552-5456 & TWX 710-326-6435. Copyright 1969 by COMPUTERWORLD, INC.

Alan Taylor, Editor; Robert M. Patterson, News Editor; Evelyn Cowell, Special Supplements Editor; Neal Widen, National Sales Manager; Margaret Pothin, Circulation Manager; Henry Flinn, Art Services Supervisor; Kate Kachinski, Typewriting Services Supervisor.

Patrick J. McGovern, Publisher; W. Walter Boyd, Associate Publisher. Subscription rates are \$5 for one year, \$15 for two years. Add \$1 per year for Canada. Single copies 10¢. For foreign, please send \$2.00. Editorial and subscription material to: COMPUTERWORLD, 60 Austin St., Newton, Mass. 02150. (617) 552-5456.

Reproduction of material appearing in COMPUTERWORLD with strictly forbidden without written permission. Send all requests for permission to the Editor.

Students Get Career Information By Computer Linked to Telephone

MONTCLAIR, N.J. — Some 200 Montclair High School students have begun using an experimental computer-assisted educational and career exploration system, developed by IBM Corp.

It is designed to help them explore the world of work and investigate educational possibilities in a systematic fashion.

As the students use the system during the next three months, the results will be evaluated by counseling experts from Teachers College, Columbia University. The study is under the

direction of Dr. Donald E. Super, professor of psychology and education.

Facts Are Comprehensive

Using experimental visual display units linked by telephone lines to a computer in Poughkeepsie, N.Y., the students have access to a comprehensive

library of occupational and educational facts stored in an IBM 360 data processor.

This information, gathered from standard counseling sources, is illustrated by 18,000 color pictures, charts, drawings,

and text stored on reels of motion picture film.

Details Are In Depth

With these materials at his fingertips, the student is able to identify 110 groupings which contain 1600 occupations, 329 of which are in depth, and explore 391 areas of advanced study. In addition, he will be able to obtain details on 1500 colleges and universities.

The student identifies himself to the system, loads the film, receives printed instructions, questions and images that relate



Student operates visual display unit linked to a computer, which projects material relative to her career interest.

to his interests. He then answers basis for discussion with his counselor, or for further review. Printed reports can serve as a with his parents.

CAI System Will Be Tested in Schools

By a CW staff writer

WELLESLEY HILLS, Mass. — The first field tests of Honeywell's computer-assisted instruction (CAI) system will begin this year in two Louisiana schools.

The adjacent school districts of Bossier Parish and Caddo Parish in northwest Louisiana will employ a newly installed Honeywell 2200 computer system for the CAI field tests. The computer was installed with a federal grant at the Supplementary Education Center of the Bossier Parish School Board.

The center is supported by Bossier, Caddo, and 10 other

school districts in northwest Louisiana, and currently is used for a variety of student and administrative data processing.

The CAI system utilizes Visual Information Projection (VIP) devices as teaching terminals on-line to a central processor.

One goal of the field tests will be to determine if teachers with no previous programming experience can conveniently use Honeywell's Author Language, a simplified programming language basic to Honeywell's CAI application package.

Author Language permits a teacher to prepare and display

educational material — such as questions, instructions, and reading matter — on the VIP screen. The student uses a keyboard attached to the VIP terminal to respond to this material.

The field tests also will help to determine what benefits students derive from the use of on-line teaching terminals. Two groups of high school students with similar academic skills will be established — one will use the CAI system and one will not. The achievements of the two groups will be compared as one criteria of the effectiveness of the CAI system.

H-200, 1410, 1401's FOR SALE

IPS has several IBM and Honeywell systems for sale and delivery in the near future. An H-200 BK system with 3 20KC tapes is available now. IBM 1410's include an 80K with 2302 disc and 7330's, a 40K with 10 729's, and a 40K with 1402, 1403, and 9 7330's. Among the 1401's (all with 1402, 1403) are BK and 4K card systems, a 12K tape system, a 16K tape/disc system, and a 4K with 2 1311's. A 1440 BK 2-1311 and a 1440 16K 3-1311 system are also available. For prices, delivery, and details, please call or write.

IPS

INFORMATION PROCESSING SYSTEMS, INC.
200 WEST 57TH STREET NEW YORK N.Y. 10019 (212) 246-2267

\$5 MILLION AVAILABLE NOW TO BUY 3RD GENERATION COMPUTERS.

Write, wire, call



THE COMPUTER EXCHANGE INC.
30 East 43rd Street, New York, N.Y. 10017
(212) 681-5870



TLW Computerworld Corner COMPUTERS FOR SALE

IBM — 1401 B4-Disk

A complete system, with disk and console inquiry. Printer 600 LPM, Punch/Read, Model 1. Immediate Delivery.

IBM — 12K — 1401

1401-1402-1403-1406 — A complete System with all features.

IBM 7070 — 10K

A nice system available for immediate Delivery. Excellent for second system.

IBM — 1440 — 12K

A large 12K system with many excellent features, 1442, 1443 (144 print positional), 1447 and three 1311 disks. June Delivery.

TLW does the total job. We have experience and satisfied customers.

Box 29763, Atlanta, Ga.
(404) 833-2679

TLW
COMPUTER
INDUSTRIES



IOA has everything you need in data processing equipment... from 024's to 360's... total computer systems including software... for sale, rental or lease.

CALL IOA
FIRST AT 212-673-9300

IOA

IOA DATA CORP., 383 Lafayette Street, New York, New York 10003

Micro Programmed Technique Is Basis for Computer

SANTA ANA, Calif. — A digital computer based on micro-programmed techniques is now available.

The Micro 800 is designed for direct integration into control and processing system applications, such as data communication, data acquisition, automatic testing, and numerical control.

The Micro 800 offers a 1.1-microsecond full-cycle core memory with 220 nanosecond micro-command execution time; microprogramming (firmware); basic building-block design of core memory, read-only store, control, processor, and input/output elements.

Core memory is expandable from zero to 32,768 bytes (8, 9,

struction set to give optimum software/firmware programming mix.

The basic cabinet measures 8-3/4 in. high by 17-3/4 in. wide by 23 in. deep, including power supply and fan. It has provisions to expand the core memory to 16,384 bytes, the ROM memory to 1024 words, to add all processor options and up to 32 I/O interface controllers.

The basic system consisting of the CPU with 256 words of ROM memory is \$2950. Core memory of 4096 bytes may be added for an additional \$2500. OEM discounts to 40% are available.

Delivery is said to be less than 30 days.

Micro Systems, Inc., 644 Young St., Santa Ana, Calif. 92705.

Control Processor

A modular computer system which starts with a basic 4K, 16-bit word memory with 900-nanosecond cycle time, a control processor, and an ASR 33 Teletype has been announced.



The Tempo 1 control processor handles over 100 one- and two-word instructions with 65K addressability. It has seven accumulator/index registers (expandable to 15), one accumulator register, flexible address modification, multi-level priority interrupts (four standard), table mode and a 16-bit I/O bus.

Options include expansion of memory in 4K increments up to 65K, byte instructions (I/O), multiply/divide, internal registers, interrupt mask, register memory, automatic program

load, program flags, high-drive I/O bus, and high-rate input/output up to eight devices at 700,000 words per second.

A read-only memory, memory control unit, auxiliary arithmetic unit, input/output processor, and a peripheral crossover can also be added.

The basic module is 10 1/2 in. by 17 1/2 in. by 24 in., which includes the control processor, room for up to 8K words of memory, power supply, and several I/O controllers.

A fully expanded system with room for over 10 peripheral controllers can be contained in five rack-mounted modules with a total panel height of only 52 1/2 inches.

Tempo Computers, Inc., 340 W. Collins Ave., Orange, Calif. 92667.

Keyboard Terminals

A keyboard terminal that combines coder and printer in one streamlined unit is being offered to Telexmach subscribers.

The keyboard is designed for situations in which the exchange of additional information is desired, and features a standard keyboard arrangement for entering the message information, plus "field keys" which light up in sequence to tell the operator what to do next.

This feature makes the unit virtually self-training, the company said.

The keyboard terminal holds the message in memory so that changes or corrections can be made prior to transmission without retransmitting the message. Combination of the printer and keyboard in the unit provides instant printed



copy of each transaction.

In addition to the normal reservation format, 62 spaces can be used for additional information about each reservation, such as extras, which are spelled-out rather than coded.

The keyboard terminal supplements the stylus-operated message composer and printer combination and the CRT terminal subscribers a choice of three different terminal units.

Telexmach, 6 Kingsbridge Rd., Fairfield, N.J.

Dual Memory Calculator

A desk-top 10-key electronic calculator with two memory banks uses the standard 10-key keyboard of the Busicom 162, and an operator can perform a number of operations automatically. These include: decimal placement, rounding off, accumulation of products and quotients, square root and squaring, raising to a power, and automatic constant in all operations.

The machine will also strike a credit balance.

In the event an operator for-

New Products

gets, the two memories in the Busicom remain in high-level power is shut off. Either mem-



ory can be cleared or recalled at the push of one button.

All operations, which include addition, multiplication, subtraction, division, extraction of square root, and raising to a power, are displayed instantly on the Busicom's 16-digit optical register.

The unit, which weighs 15.4 lbs., has integrated circuits throughout, and operates from standard 110-115 volt ac. Busicom U.S.A., 31 E. 28th St., New York 10016.

Communications Accessories

Error control for data transmissions and automatic answering of remote station teletypes are features of a new series of compact, solid-state devices called Struntronics Accessories.

SA-110 and SA-120 are designed for systems in which data must be transmitted accurately, such as payroll, order processing, and inventory control.

Both respond to vertical parity signals, errors by the receiver pulses that activate various displays or alarms.

At the same time as they register errors, they improve the signal reception by regenerating signals which have as much as 45% distortion.

The SA-110 controls marking bits one bit at a time, then compares the marking count with the parity bit transmitted. The SA-120 detects vertical parity errors by regenerating a whole character at a time.

It can direct a terminal to print out a preprogrammed symbol when an error is detected — an asterisk, for example.

Used on standard-speed terminals, it can also be arranged to convert signal bit rate from low to high — thus permitting lower-speed terminals to feed high-speed paper tape terminals, according to the company.

All four modules are easily installed within Teletype Model 33, 35, 37, and the new high-speed Intronics terminal equipment. They can be used with receive-only, keyboard-and-receive, and automatic send-and-receive versions of the terminals, and with Teletype equipment.

Teletype Corp., Dept. SP77, 555 Touth Ave., Skokie, Ill., 60076.

Multipoint Recorder

An 8-channel device records microsecond data at sampling rates 20 times higher than conventional multipoint recorders.

Datainput is designed for monitoring fast-changing variables in such parameters as temperature,

flow, pressures, strains, chemical processes, and self-dynamics, and in laboratory and process control.

It features the ability to handle mixed inputs from high-level sources together with outputs from low-level sources.

The recorder can be operated in any of three modes: *Intermittent*, for sampling from 2 to 8 channels at rates from 2 seconds per sample to as high as 20 samples per second; *Intermittent*, by which channels of higher dynamic content may be sampled with greater frequency than others; *Continuous*, in which any one channel can be recorded continuously at frequencies as high as 5 Hz full-scale, or higher at reduced amplitudes.

A single pen driven by a high-torque servo-controlled galvanometer touches the moving chart each time a data channel is sampled.

A solid-state multiplexing system allows 8-channel operation through one amplifier; or inputs can be derived through external amplifiers.

The recorder is available in both bench-top, portable, or rack-mounting versions, and is priced about \$2500.

Brush Instruments, 37th and Perkins, Cleveland, Ohio 44114.

Core Memory System

A compact core memory system that the firm says costs as little as \$100 per bit has a 4096-word memory available with 8, 12, or 16 bits per word, and measures 2-3/4 in. by 5 in. by 10 in.

The system, called the ICM 160, is flexible expandable to other bit and sizes on a modular basis.

Full cycle time is 1.6 microsecond with access times of 550 nanoseconds.

The ICM-160, which is the first of a new line, features low power consumption and high reliability in addition to small physical size, the company said.

It is designed for machine tool control, petroleum, chemical, steel and power process control, systems, computer peripherals and data rate buffering, as well as for use as a mainframe memory in general-purpose and special systems.

The circuitry and core stack of the memory are packaged on removable printed circuit cards for ease of maintenance. The system uses a four-wire coincident current magnetic core array, and is self-contained, including an address register, internal timing and control, sense amplifiers, and integrated circuit X-Y selection switches.

All logic addressing, decoding, control X-Y selection switches, and sensing functions use integrated circuits, which is said to be a high calculated mean time between failures of 40,000 hours.

The memory is both electrically and mechanically compatible with other Honeywell Micro-Pac systems, and can be operated from common system power supplies.

Honeywell Computer Control Div., Old Connecticut Ry. Frd., Framingham, Mass. 01701.

Keep your shirt on.
Look for the
Commonwealth label.



Commonwealth Computing Inc.

Wirecutters, Acid Used on Computer

By Peter L. Briggs

CW staff writer

BOSTON — The central computer at Boston University's Educational Center was destroyed by vandals either late Saturday night or early Sunday morning, March 29 or 30 according to John E. Alman, director of the facility.

The damage was discovered by an operator arriving about 10:00 a.m. Sunday. Alman and IBM were called in immediately.

The operator discovered that the outside doors of the building had been forced, and the inside cage-type door had been cut through. The vandals ignored the records stored nearby, however, and concentrated on the central processor of the IBM 360/40.

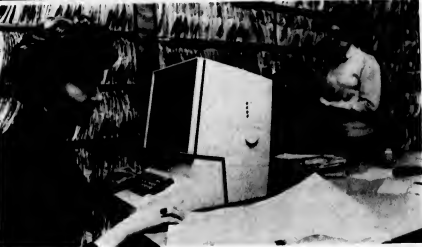
They used wire cutters to cut the connecting wires within the CP, effectively destroying the machine's usefulness, Alman said. To make absolutely certain, he continued, they threw acid into the printed circuits, eliminating any possibility of immediate repair. The acid seriously damaged most of those areas not reached

by the wire cutters, he said.

At the time *Computerworld* spoke with Alman, IBM was trying to estimate the extent of the damages, but no figures were available. IBM was unable, at press time, to provide any estimate as to the extent of damages or the time needed for replacement or repairs.

The computer was used as the central computer for educational use. Backup arrangements for time have been made locally with IBM.

Mysterious phone calls received at the occupied administrative facility throughout Saturday night indicated the vandals might have been after the 360/30 located there.



NEW AND THE OLD: The new computer-based filing system at St. Francis Hospital, Wichita, Kan., is in sharp contrast to the old, manual system, shown in the background. The system uses an IBM 360/40 and 2260 terminals.

Turn the
Peopleware
problem into
an opportunity
...with a

**COMPUTER
ENVIRONMENTS
CENTER
Franchise**

Frederick B. Bartlett
Director of Franchising

**COMPUTER
ENVIRONMENTS
CORPORATION**
Hawthorne, N.H. 03235
Tel. (603) 843-4655

a TIME SHARE company

the small pill for the big headache*



*for immediate emergency relief, call (212) 683-6446

Are you a user of small data processing systems and find your headaches getting bigger and more frequent? Can't find any relief, even when you call that "Big Man" who originally prescribed your "headache-free" system? He won't even make house calls...you're not big or important enough...you're just a pain in his punch cards. Relief at last! A specialist that knows all the symptoms of your big headache, and how to give them fast, effective relief...a corporation dedicating its total efforts to the complete support of users of small data processing systems. If you want the small pill to prevent or relieve your big headache, use 3S...we even make house calls.

SMALLSCALE SYSTEMS SUPPORT INC.

245 Fifth Avenue, N.Y. 10016 Prevent big headaches...Send for your 3S Reliever Kit



NAME	_____
TITLE	_____
COMPANY	_____
ADDRESS	_____
CITY	_____
STATE	_____
ZIP	_____

Editorials

Welcome to a New Peripheral

Generally computer peripherals are not thought to include memories, but the logic of this distinction is based on the fact that a memory is tied into the central processor. Extended core memories are not tied into specific processors and now, it appears, they do not even need to be tied into a specific type of processor! Now the same memory can be used for different systems manufactured by different companies. Now they appear to be bone fide peripherals.

From the user's point of view, every relaxation of restrictions, every piece of increased flexibility in the hardware, indeed every added facility, is welcome. And so we welcome the new Lockheed memories. They can do nothing but improve the user's range of choices.

And we also welcome the appearance of Lockheed, with its well-known name and fine reputation, into the ranks of hardware manufacturers. We are sure that this is not the last product for commercial computer users that we will be seeing from them.

Plug-Compatibles & Computer Contracts

In a recent article, Francis G. Awalt, Jr., of IBM's Advanced Development Division counseled attorneys on the problems involved with contracts for computers. There are a number of interesting points in his article including one pointing out that the user is primarily responsible for providing programs and another that clients should be made to realize that manufacturers may not continue to provide programming maintenance for machines if they decide to purchase rather than rent systems.

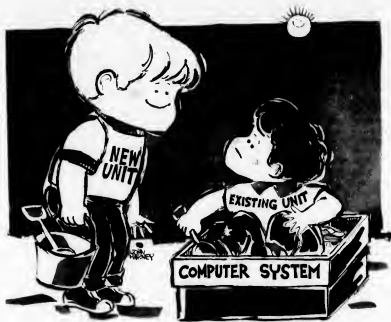
However, a more surprising point came when he was discussing the problems of systems where the products of two manufacturers are interconnected. He said that suppliers have little real knowledge of the effect of one piece of equipment upon another, even though they are "plug compatible." And, he says, that therefore each supplier in a data processing system must disclaim responsibility for the failure of performance of such a system.

If this is true, then it is very serious. In another editorial we are commenting, for instance, on the introduction of the Lockheed plug-compatible memories. If Lockheed "has little real knowledge" of the effect of this equipment on System 360, then its action in offering it raises serious questions involving Lockheed's morality.

If, on the other hand, these effects are known, then the suggestion by Awalt that they are not would appear to be a scare tactic which the industry could do without.

In either case it is clear that more information should be available both to lawyers advising their clients and to the industry at large. This is something which Awalt might urge the manufacturers to work actively together to change, rather than urging attorneys to base their advice on the effect of missing data.

Some Adjustments Needed



Letters to the Editor

What If the ACM's Membership Had Grown as It Should Have?

Following Miss Sampson's article in the Jan. 22 issue, I had a nagging feeling in the back of my mind about the 25,000 membership of ACM and its somewhat antiquated organization based upon a smaller society. What bugged me was "What if ACM had grown as it should have?"

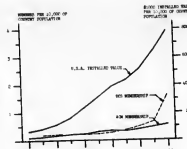
In case anyone thinks it has, here is a small graph that tells the story. The disparity in slope does not appear as bad as it really is, for the computational power per dollar has increased greatly in this 10-year period.

The British Computing Society's figures are shown for reference. The BSC seems to have done something about it. Membership at the beginning of 1968 was 18,000 in a country of 55.8 million population. Correspondingly, the ACM membership was 22,800 in a country of 201.8 million which was more installation value per capita than any other country in the world.

Would chartists extrapolate to the conclusion that ACM is a dying society, or at least one whose real influence will disappear?

General Electric
Phoenix

R. W. Bemer



Computerworld welcomes comments from its readers. Preference will be given to letters of 250 words or less. Computerworld reserves the right to edit letters for purposes of clarity and brevity. Letters should be addressed to: Editor, Computerworld, 60 Austin St., Newton, Mass. 02160.

Message From a Computer To Computerworld's Computer

The following letter was received in answer to a letter from CW's managing editor, which began: "Our computer tells me that you have not renewed your subscription..."

DEAR COMPUTER

I WOULD LIKE TO TAKE THIS OPPORTUNITY TO POINT OUT YOUR ERROR IN TELLING YOUR MANAGING EDITOR THAT ALASKA DEPARTMENT OF LABOR HAS NOT RENEWED ITS SUBSCRIPTION TO COMPUTERWORLD.

PLEASE INSTRUCT YOUR HEARTLESS PROGRAMMER THAT ALL THAT WAS WANTED WAS TO CHANGE THE NAME ON THE SUBSCRIPTION. IF THIS CAUSES THE MATCH CODE NOT TO MATCH THERE IS A BUG IN YOUR PROGRAM WHICH SHOULD BE CORRECTED.

WHILE I AM JUST AN AGING SECOND GENERATION COMPUTER MY MEMORY HAS BEEN UPDATED TO REFLECT A RECENT ORGANIZATION CHANGE BY COMPUTERWORLD. CONGRATULATIONS TO EVELYN COWELL YOUR NEW EDITOR OF SPECIAL SUPPLEMENTS, HENRY FLING SUPERVISOR ART SERVICES, AND KATE RACHSTEIN SUPERVISOR TYPESETTING SERVICES. I SUGGEST YOU OBTAIN THEIR HELP IN GETTING THAT HEARTLESS PROGRAMMER GUY TO UPDATE YOUR MEMORY BANKS.

BEING IN AN ISOLATED AREA THE ORGANIZATION LOOKS FORWARD TO EACH NEW ISSUE OF COMPUTERWORLD AND SINCERELY HOPE YOU CAN MAKE THE MATCH CODE MATCH SO WE MAY CONTINUE TO ENJOY YOUR WEEKLY PAPER.

SINCERELY YOURS,
FO4 1401

ALASKA LABOR DEPT.
JUNEAU

Merchandising Convention Scheduled for April 20-23

ATLANTIC CITY, N.J. - Two sessions at the National Merchandising Convention, to be held here April 20-23, will be devoted to information systems. A discussion by users of EDP as applied to hardgoods, softgoods, and warehouse inventory management will be held April 21 at 2 p.m. Taking a systems viewpoint, the discussion also will cover future uses of EDP for inventory control.

A panel will discuss techniques for improving the speed and quality of data capture, and new equipment and methods for point-of-origin capture and optical character recognition April 22 at 2 p.m. Further information about the convention may be obtained from the Mass Merchandising Research Foundation, 570 Seventh Ave., New York, N.Y. 10018.

IEEE Memory Systems Symposium To Be Held Today in Los Angeles

ENCINO, Calif. - A one-day symposium on "Memory Systems - Past, Present, and Future" will be held in Los Angeles April 9 by the Computer Group, Institute of Electrical and Electronic Engineers. Planar thin film, semiconductor, core, plated wire, and other memory technologies will

be examined in nine papers presented by experts in the field. Prior registration is \$4 for IEEE members and \$5 for nonmembers. Further information may be obtained from Bill Martin, Hughes Aircraft Co., P.O. Box 3310, Bldg. 604/B-115, Fullerton, Calif. 92634.

smtwtfs calendar smtwtfs

April 8-10, Daytona Beach, Fla. - General Electric 400 Users Association. Contact: Bruce H. Reinhold, Pittsburgh National Bank, Pittsburgh, Pa.

April 20-23, Atlantic City, N.J. - Fourth National Mass Merchandising Convention. Contact: MMRF Headquarters, 570 Seventh Ave., New York 10018.

May 13, Boston, Mass. - "Extensible Languages" symposium by the ACM Special Interest Committee on Programming Languages. Contact: Carlos Christensen, Extensible Languages Symposium Chairman, Massachusetts Computer Associates, Inc., Lakeview Office Park, Wakefield, Mass. 01880.

May 16, Utica, N.Y. - Upper New York State Systems Seminar (The Association for Systems Management). Contact: Joseph W. Bernhard, (315) 797-2600.

May 20-22, Houston, Texas - Southwestern VCC. Contact: John E. Sedan, executive vice-president, Society of Reproduction Engineers, Suite 610, 305 Andrews Ave., Fort Lauderdale, Fla. 33301.

May 27, Harrisburg, Pa. - 5th Annual Systems Seminar. Contact: Stan Kross, 710 Elkwood Drive, New Cumberland, Pa. 17070.

**Keep your shirt on.
Look for the
Commonwealth label.**



Commonwealth Computing Inc.

PROJECT TELETYPE PRINTOUTS

New
TypeProject®
Opaque Projector
Mounts on Model
33 Teletype®
for Group Viewing
of Typed Material

- Simple to use; No Teletype modifications
- For groups of up to 100 viewers
- Projects line being typed, and 19 preceding lines



BBN BOB BERANEK &
NEWMAN INC.
DATA EQUIPMENT DIVISION
2130 South Lynn Street
Sunnyvale, California 95075
Telephone: 714/546-5300

WE ARE NOT

COMPUTER TIME?

A SERVICE BUREAU
JUST A REAL TIME SHOP WITH COSTLY
IDLE BACK-UP

N.Y.C. & L.A.
2-512K 360-60's 2314's 2311's 1410/7010
Simulation T & 9 TRACK TO 1600 1600 BPI
(III's & VI's) 2701's 2703 2260's TELE-
TYPES

DETROIT
84K 360/30 2311's 749 TRACK
2703 2260's
QUICK DRAW - COMPUTERIZED PRO-
GRAM FLOW CHART AVAILABLE 08-008
CIBOL FORTRAN FLI GPHS MP8 PERT
ETC.

NYC - 212-425-4633 X 19
LA - 714-776-6580
DET. - 313-272-5300



FOR SALE
IBM 7074
Available June 1
TWA
(212) 557-5397

**you can
have your cake
and
eat
it
too**



...with CPU's all new disk pack lease plan!

Because of the fantastic sales success of our leasing plans, we are now able to provide a new and even better Disk Pack leasing program with greater savings and flexibility.

Here's how it works: CPU will lease to you either your present packs or new ones of your choice. Take advantage of our new five year rate at savings of up to 40% of your present rates.

For additional information, write or phone us at 312 943-5636.

And talk about flexibility! You may terminate the 5-year lease any time after 12 months by paying a small early termination fee. Or if you find that you need larger disk packs, you can terminate any time after the first year without penalty if you let CPU lease the 2316 disk packs of your choice.

In addition to greater savings CPU now offers 48-hour replacement of defective packs.

A growing family of user-related companies serving business and industry.
Computer Processing Unlimited
Computer Packs Unlimited
CPU Inc. Main Data Processing Center



Computer Packs Unlimited has Agents in the following cities: New York, Boston, Cleveland, Memphis, South Bend, Cincinnati, Minneapolis, Milwaukee, Los Angeles, Chicago, Miami.

232 East Ohio St., Chicago 16 80611

Railroad Operations System Ahead of Schedule

By Peter L. Briggs

SC staff writer
Southern Pacific Railroad is speeding up its conversion to a new computerized Total Operations Processing System (Tops) on a nationwide basis. Already some seven months ahead of the expected status, it is operating on over half of SP's 14,000-mile truck system, and will be completely operational by August according to John Nelsen, supervisor of training for the new system.

The system, a \$22 million in-

vestment on the part of SP, will provide information on location of all cars, goods in transit, and the routing needed to perform the best service in rapid shipping. Communication for the system is provided through the company's nationwide microwave communications network, the world's longest private network of this type.

All data is tied in by wire to repeater stations and transmitted to the company's central computers (two IBM 360-65s) for processing. The resulting analysis is

projected on a wall-sized display showing the key routing points of the rail network and the interconnection points with other networks.

Tops already extends throughout eight states, providing routing improvements for local shipping in areas where the system is completely active, according to company president Benjamin F. Biagini.

"Our objective in developing Tops is to find new ways to improve service to shippers and the consuming public," he pointed out.

The company intends to implement a total management information system based on the data gathered by the automatic detection devices in the system when the network is completed. These devices determine what car has passed through that point, and this information should permit the company to improve the precision of its service, as well as the scope.

One major expense in the shipping area is the problem of maximizing the use of freight cars, Biagini said. This system will enable the company to know what type as well as how many units they have at each



Edward Katon at the San Francisco traffic service bureau retrieves an answer for a customer.

point, allowing them to give a customer an accurate estimate of when they can supply the needed cars.

"Tops will give us, in effect, an astronaut's eye view of the entire railroad," Biagini declared. "Our people will have better control over the whole, wide range of day-to-day railroad operations."

"All levels of management will get the timely information needed to speed up service," he added.

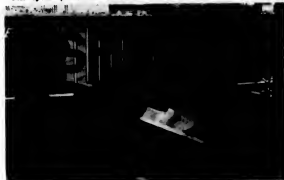
When completed, the system will incorporate some 325 locations for reporting using about

450 devices. Currently some 140 locations are reporting.

"At every level of supervision and every point of action," Biagini declared, "railroad men will have the instant information to help them make meaningful decisions not now possible."

The system is the result of some 600 man-years of development work, and the accumulation of a staff of about 200 specialists from both IBM and SP.

By the end of the year some 2500 people will have received the training program.



Sharon Shores, working at the Warm Springs Yard, Fremont, Calif., reports car information to the central computer.

NOTICE TO ADVERTISERS

Our Industry's Semi Annual Gathering of The Clan is almost here . . . SPRING JOINT COMPUTER CONFERENCE (SJCC) War Memorial Auditorium, Boston, Mass.

May 14, 15, 16

Interest is high . . . as well it should be . . . The Joints are excellent occasions to highlight your sales efforts.

COMPUTERWORLD helps you highlight with TWO issues for Spring Joint, just like we did in 1967-68.

1. SJCC Preview Issue - mailed May 7th (one week before the show opens)
5-6000 issues distributed by Computerworld to show attendees - May 14th

- (a) Issue date is May 14
- (b) Color closing - April 18
(Space reservations & mechanicals)
- (c) Pub. set closing - April 25
(Space reservations & copy)
- (d) Black and white closing - April 28
(Space reservations & mechanicals)

2. SJCC Show Issue - mailed May 15th
5-6000 issues distributed by Computerworld to show attendees - May 15th

- (a) Issue date is May 21
- (b) Color closing - April 25th
(Space reservations & mechanicals)
- (c) Pub. set closing - May 2
- (d) Black and white closing - May 5
(Space reservations & mechanicals)

All orders, mechanicals must be received at COMPUTERWORLD, 60 Austin St., Newton, Mass. 02160, by 5 p.m. EST on closing date stated. Any exceptions must be confirmed IN WRITING by the Computerworld Advertising Department.

These closing dates are in effect only for these SJCC issues . . . before and after, it's Business As Usual . . . Friday closing for the next Wednesday's issue. We're closing earlier to serve you better. SJCC is important to you, we want to give you the best possible service. AND THINK ABOUT THIS . . . FOR THE MONTHLIES, SJCC closed last week. ONLY IN COMPUTERWORLD do you have the chance to improve your product ad - up to the end of April. That's why we say . . . the only thing faster than the fast-moving Computer Industry is COMPUTERWORLD . . .

The first and only NEWSWEEKLY for the Computer Industry.



Carol Ritovitch checks the console of the central IBM 360/65 in San Francisco.

**Keep your shirt on.
Look for the
Commonwealth label.**



Commonwealth Computing Inc.

Bill Would Give 3 U.S. Agencies Right To Bar Certain Banks From DP Field

WASHINGTON, D.C. — The Nixon administration proposed to control the activities of "one-bank holding companies" last week, immediately before hearings opened on another bill introduced by Wright Patman, chairman of the House Banking and Currency Committee.

The administration bill called for the one-bank holding companies to be restricted to activities included in lists to be written by the Federal Reserve Board, the controller of the currency, and the Federal Deposit Insurance Corp. Currently these holding companies can engage in almost any activity because of a loophole in the 1956 Bank Hold-

ing Company Act. As a result of this loophole, the number of one-bank holding companies, which was only 117 before the 1956 act was passed, has now reached 783. It is believed that they control over 40% of the total banking industry.

The bill, if passed, would allow the administration either to permit or deny the banks the right to enter into data processing services. Currently, under a ruling issued by the controller of the currency, banks are free to enter into this field. However, this ruling is being challenged by the Association of Data Processing Service Organizations in the courts.

A more stringent control on one-bank holding companies has been suggested by Wright Patman. He is asking that the holding companies be ordered to divest themselves of nonbanking activities within five years. Hearings on this bill are to be held early this month.

The problems of one-bank holding companies have also been approached by Sen. William Proxmire, D-Wis., who has proposed legislation that would freeze the number of such companies until June 30, 1971. The Proxmire bill would allow holding companies to continue any nonbanking activities which they engaged in before the 1971 date.

Adapco has lost two rounds in court in its fight to prevent national banks from offering data processing services and is now seeking to have the case reviewed by the U.S. Supreme Court.



1100 DISK-PACK
600 DISK-PACK
TVP 2 MAGNETIC TAPE

BASF Computron Inc.
Crosby Drive, Bedford, Mass. 01730 Tel. (617) 271-4000

Slower, Cheaper Version Of the 1108 Is Introduced

(Continued from Page 1)

microseconds.

Input/output channels come in groups of four, up to four groups. Each has a throughput rate of 313,000 words per second, subject to the system limit of 667,000 words per second.

Instruction overlap allows simultaneous access of instruction and data. Double precision and floating-point arithmetic are standard, as on the 1108. The 1106 has 128 program-addressable registers for arithmetic operations, address indexing, and I/O buffer control.

Up to 64 communication lines can be added. Externally Specified Index (ESI) allows another 1108 feature, it said to allow multiple-line, self-controlled transfer without disturbing program sequence. Guard Mode is Univac's term for hardware program protection. Each program or symbol is assigned its own Guard Mode limit, with variable-size partitions, Univac said.

The 1106 differs significantly from the 1108 in that true multiprocessing (two or more processors sharing memory) is not available.

All software available for the 1108 can be used on the new

processor, the company said. Operating Systems Exec II and Exec 8 can be used. A Fortran IV compiler is offered, along with applications packages such as APT III, PertTime, Linear Programming, and Univac's MathStat subroutines. A Cobol compiler also is available, Univac said.

The 1106 can use Fastread II and III drums, the FI-432, FI-1800, and FI-1783 fixed-head drums, and other peripherals, including the 9000 series processors, communications terminals, and high-speed printers, the company said.

Typical System

A typical 1106 with 131K of main memory, four input/output channels, a (full I/O) CRT console, a 1782 drum, three 432 drums, one Fastread III (198-million-character storage), two printers (including one delivering 1600 lines per minute), six Univac VIII tape drives, and eight Control Termination Modules with a control, will rent for about \$37,000 per year, Univac said. A similarly equipped 1108 rents for about \$52,000.

Delivery is expected to begin in the first quarter of 1970, Univac said.

\$23.00
Per Hour
MIDTOWN
MANHATTAN
360/30

32 K-BYTES
4,231 DISC DRIVES
1403 1100 LPM PRINTER
2540 READER

We have a large block of Time available for 1/2 of 2nd Shift, all of Third Shift, and all Weekends. Economical, plenty of power; ideal for heavy print jobs or a Software House that cannot afford a whole system.

For further information please call Mr. Fusco and Mr. Britte at

OX 5-4700

Keep your shirt on.
Look for the
Commonwealth label.



Commonwealth Computing Inc.

Plug-In Mass Memory is Designed For Univac 494s, Large IBM 360s

(Continued from Page 1)

retrieved for large-volume updating operations. Any company

Conversational Mode Is Added

(Continued from Page 1)

more high-speed printer. For this kind of service, already released, RJE can process data sets produced by CRJE. RJE can drive a remote line printer.

CRJE is scheduled for release during the third quarter of 1970.

The minimum configuration for CRJE run under MVT includes a 360/50 with 364,000 bytes of core storage. Operation sets MVT requires at least a Model 40 with 256,000 bytes.

that feels that it has reached limitations for its systems because of the amount of memory might find this device of great use. The speed, size, and flexibility of the device could provide many applications of a reasonable, cost-justifiable, approach to increase files and on-line updating.

A Univac 494 is working currently with three of these memory devices attached over an I/O channel. The devices could not be "added" to the main memory because the addressing bits cannot handle addresses over 64,000 words.

The unit will be delivered starting in the first quarter of next year, according to Lockheed, which has offices at 6201 E. Randolph St. here.

Computer Companion

#786



Tab's Data Media Control System helps you make maximum use of your computer. How? By making sure all your data media—cards, tapes, disks, etc.—are stored and transported with the greatest efficiency. This system starts with our Data Media Control Survey which gives

you a clear picture of your current data media inventory and handling capacity, and of your present and future requirements. We'll be glad to send you a copy. (And be glad to help you make your survey without obligation.) Write us.

TAB
PRODUCTS CO
623 Battery Street
San Francisco, Calif. 94111

Keep your shirt on.

Strictly off the cuff — can you guys really do all my 360 programs for one half my in-house costs — no matter what size I am?
If so, please have your representative call me to make an appointment.

Name _____

Title _____

Company _____

Street _____

City _____

State _____

Zip _____

Phone _____

Send to: Mr. Lee Rankin
Corporate Headquarters
Commonwealth Computing Inc.
60 Hickory Drive
Waltham, Massachusetts 02154

201

Send in the coupon or call us at (617) 891-6725.



Commonwealth Computing Inc.

BOSTON NEW YORK PHILADELPHIA BALTIMORE / WASHINGTON D.C.

Who'd blame you for getting hot under the collar? Weeks ago you sent those job requisitions into Personnel for more 360 programmers — and they're still not hired.

When you want to keep your shirt on . . . and your programming costs down — look for the Commonwealth label. Available in relaxed DP rooms everywhere.

Everybody's on your back because those management information reports aren't out yet. As if you could get them out, the way they've got you jammed with routine programming — never mind the spectacular stuff.

We have the starch to say that we can do up all your 360 programming . . . for one half your own in-house charges.

We don't care how many 360 programs you have backlogged. We'll button down one or a closetful.

Think of it. You can pocket 50 cents of every buck you'd spend otherwise — just to keep from falling behind any further. (Let alone catching up.)

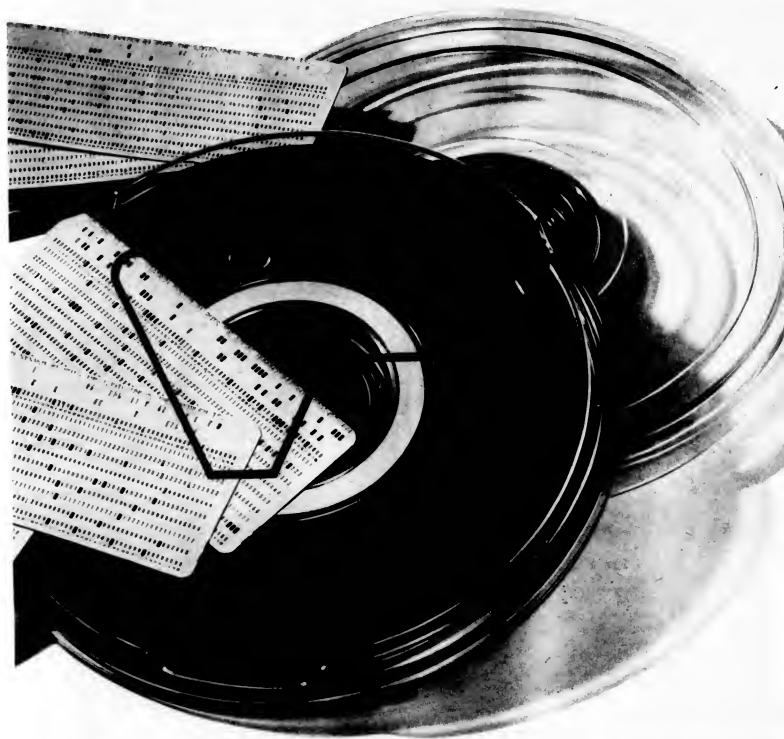
One thing's missing. We haven't sewn through the 360/20 yet. But we're needling our research group about it.

Our work is cleaner, brighter. We get out even the dirtiest jobs, all de-bugged, tested, ready to go on the air. That includes standard DOS, TOS and OS modules, as well as BPS stand-alone programs.

Something else up our sleeve: we have 200 programmers, ready to roll up your programming problem — for half the charges you'd incur trying to iron it out yourself.



Only VIATRON System both magnetic tape and from the same desk-to



21 will let you prepare d cards-or go on line- op station

Learn how System 21 data stations will give you greater flexibility, cut your input costs in half.

System 21 will be flexible. If you want cards, you can punch them. If you want tape, you can have it. If you want to go on-line to your computer, you will be able to do that too. And you will be able to do it all from any number of different locations.

Each System 21 station will be able to operate independently of your computer and other System 21 units. Each desk-top station will be completely self-contained. It will require no software, no connection with other equipment. No computer environment. No modification of your present computer system.

You will be able to pick up a System 21 station and put it on any desk where you want data prepared for computer input. Plug it in and it will be ready to work.

"Fill-in-the-blanks" formatting

Formats will be displayed on the video screen. Data will be entered by filling in the blanks on the format, using a standard typewriter keyboard. Errors quickly corrected by backspacing.

Once data is visually verified, it will be automatically recorded on a reusable VIATAPE cartridge. This will make it possible to record data at remote locations for batch transmission to your computer center at the end of the day.

On-line operations

You will be able to use any System 21 station for remote job entry applications. All you will have to add is a System 21 communications adapter. This means you will be able to establish two-way communications with other System 21 stations over regular telephone lines. You will even be able to input data directly into your computer from remote locations. And, if you want to, you can add a printer for hard copies.

Pick the components you need

The key to this whole system will be the System 21 desk-top data management station. This basic unit consists of a preprogrammed microprocessor that will provide "fill-in-the-blanks" formatting to prepare computer input, a video display, data and storage channels, a standard keyboard and two VIATAPE recorders.

Other System 21 components will include an attachment that converts any Selectric® typewriter into an efficient data printer and high-speed, bidirectional translators that convert data on VIATAPE to punched cards or 800 b.p.i., 7- or 9-track computer tape.

You pick and pay for only the components you need.

No capital expenditure required

VIATRON does not require long-term lease agreements. The VIATRON rental agreement will contain a 30-day cancellation clause. For more information write VIATRON Computer Systems Corporation, Dept. C-8, Burlington Road, Bedford, Massachusetts 01730 today.

Deliveries are scheduled to start this year.



VIATRON System 21 puts the logic where the problem is



COMPUTERWORLD

Software

DAI Net-1 Provides for More Accurate Analysis

LEXINGTON, Mass. — A new version of the combined Network Analysis (original Net-1) System and the Solution Output Processor (SOP), which were originally developed by Los Alamos Scientific Laboratories, has been developed by Design Automation, Inc.

The package, called DAI Net-1, provides correct computations in cases where the original version cannot, the company said. It is supposed to be much less prone to "mysterious" failures, require less computer time by better adaptation to the batch environment, simplify input requirements, and streamline operating procedures, the company explained.

Program Description

For use by computer-aided electronic circuit designers and analysts, DAI Net-1 is an efficient, reliable program for nonlinear dc and nonlinear transient analysis with graphical output, better suited than its predecessors for rapid, trouble-free batch processing, the company said. Electronic circuits containing the following components can be analyzed: resistors, capacitors, inductors, mutual inductances, transistors, diodes, dc sources, signal sources, and devices which can be modeled as combinations of the above, the firm said.

The program includes the Los Alamos improved dc analysis routine using double-precision arithmetic. The DAI version was developed for use in DAI's own computer-aided design consulting activities.

Graphical/Plotter Output

The output processor/plotter routine allows all of the following results of the Net-1 transient

analysis to be plotted on the General Dynamics SC-4020 and/or printed in compact edited format using the computer print type: node voltages; transistor terminal currents; diode currents; inductor currents; signal source voltages; any mathematical functions of the previous items using addition, subtraction, multiplication, division, integration, and differentiation with respect to any variable (including time); and functions of such operations. On the plots, all of the preceding items can be plotted versus time or versus each other, DAI said.

The package operates on the IBM 704, the 360 with 7094 emulators, and the Standard Computer IC6000. A 7090 version can be prepared on request. The program is supplied on an object tape, with a built-in 120 character leader specified by the customer. One year of maintenance, a program test case, a semiconductor library tape, library update program, user manuals, and loader cards are included in the \$2,300 price, DAI said.

'Gedan' Provides On-Line Personnel Information

NEW YORK — At a recent demonstration before the American Management Association, General Electric unveiled its new personnel analysis system, known as Gedan (GE data analysis), for use with the time-sharing system.

"The new program uses the GE time-sharing concept to perform analysis and retrieval tasks never before possible in so short a

DAYTON, Ohio — A new information storage and retrieval system, which the developer says is the most sophisticated, flexible, and practical system yet devised, has been introduced by Data Corp., a subsidiary of the Mead Corp.

The system stores and retrieves in plain English, produces answers in seconds, builds its own keyword dictionary, and permits direct access to the complete data base or any part of it, a company spokesman said. It can be used with any 64K or larger IBM 360 system or can be adapted to other similar size equipment, he said.

Mead Data Control, as the new system is called, is now operational and has been selected by the President's Committee on Scientific and Technical Information as best suited among 30 other candidates for U.S. government use.

"We see this system as offering great potential in information retrieval in the fields of research and development, law, chemistry, medicine, and personnel," said William F. Gorog, chairman of Data Corp. "In fact, we are already working on assignments in all these areas."

This is how the system works, according to Data Corp.:

Every word entered in the data base becomes a "handle" for

extracting information, with the "dictionary" growing with every input to the system. This permits the system to operate on a free-text basis, searching every word in the data base and quickly producing the requested information. Mead Data Control does not require use of special codes nor extract data based only on headings. Information requested may be modified or narrowed, depending on the user's requirements. Once the MDC computer has been informed which and how much information is needed, the data is displayed on a CRT, high-speed printer, or remote typewriter console, or recorded on magnetic tape.

The company is currently involved in a joint project with the Ohio Bar Association to file in a computer bank the entire body of Ohio case law, representing some 95 million words since 1810. When completed later this year, Ohio Bar Association members will be able to ferret out complicated legal precedents.

Under a government contract

and technical direction of the IST (Information Science and Technology) Panel of Cosati, Data Corp. is currently loading five information files in a data base which includes:

1. A compilation of summary data concerning current U.S. government-sponsored research and development.
2. Bibliographic references to the Information Research Center records of the Battelle Memorial Institute.
3. Bibliographic references to the Technical Information Exchange records concerning computer sciences at the National Bureau of Standards.
4. Bibliographic references and index terms in Volumes 1, II, and III of the Annual Review of Information Science and Technology (IST) published by the American Society for Information Science.
5. A file containing a 3000-word glossary of IST terms such as byte, binary, time-shared, etc.

A New Mapping System Plots Maps Automatically

SACRAMENTO, Calif. — A computer program for automatically plotting subdivisions and similar surveying projects has been designed by PMT Associates.

Designated Samps (Subdivision and mapping system), the program plots a subdivision map completely with bearings, distances, and all other information required to describe a final map, the firm said.

Originally developed to allow the engineer to plot work sheets used in subdivision computations, the program can also be

used for plotting control networks for surveying jobs and for primary control of aerial photographs, PMT said. No manual intervention is needed for positioning of annotation on the map, and conflicts arising from common courses of adjacent lots are automatically resolved, the company said.

The program is designed for use on an IBM 1130 with 8K disk storage, and a CalComp plotter.

PMT has its offices at 3260 "J" St., here.

IBM is Designing an Order Entry System for Apparel Companies

WHITE PLAINS, N.Y. — A computer program to help apparel and footwear manufacturers get the retail merchandise to their retail customers before it goes out of style is being designed by IBM.

The program, called the IBM Order Allocation System, is designed to fill customer orders based on priorities established by the user. The priorities can take into account such factors as the size and type of order, the

retailer's requirements and ordering patterns, and the desired balance between inventory and open orders, an IBM spokesman said. Detailed "picking slips," listing all items to be shipped, are printed by the computer, he said.

The order allocation system may be used on IBM 360/25 and larger 360s that have disk storage and a minimum capacity of 24,576 bytes, he said. It is scheduled to be available in the first quarter of 1970, he added.

Autodoc Can Provide Complete Documentation for Cobol, Fortran

PALO ALTO, Calif. — Autodoc, an automated documentation system designed to produce documentation directly from source decks has been released by Computer Time-Sharing Corp. The program operates on the IBM/360 and the Honeywell 200 series at present, according to the company.

With Autodoc, the company says, all documentation will be provided quickly and at a low cost, allowing the programmers and analysts to produce more quickly to more productive work. This also allows a company to maintain up-to-date documentation without expending valuable manpower.

It is currently available for total documentation of systems written in either Cobol or Fortran, the company said, and versions to handle Assembly Lan-

guage, PL/I, and Easycode are being developed. User-developed language modules will be developed by the company at the user's request, a spokesman said. The package currently operates on the 360 under either DOS or OS on any model and on the Honeywell 200 and 2200 machines, he said. The other versions are presently being prepared and will operate on Univac, GE, RCA, and CDC equipment, he said.

The package is available under a three-year lease for \$4,800 per year and, after the three-year period, for \$900 per year for one language. For each additional language, the charge is \$1,800 per year for the first three years and \$350 per year thereafter.

Computer Time-Sharing Corp. is at 1018 Palo Alto Office Center, here.

time," said Glenn Bassett, a GE consultant on personnel practices and systems.

Originally developed for batch processing work in the company's personnel sections, the program has been adapted to time-sharing to facilitate freer use of the approach to the streamlining of personnel functions, Bassett said.

To demonstrate the package, Bassett had attendees fill out questionnaires as they entered the meeting. During the presentation, Bassett and his aides fed questions into the system, which was connected by telephone to a GE Resource (a cost-sharing arrangement now available from the GE company) computer in Maryland. Analysis of the questionnaires was printed out on the terminal in about two minutes, and Bassett displayed it on a wall screen.

In explaining the purposes of such a system, H.V. Weatherber, manager of employee relations and practices for the company, said that for personnel people, improved performance "depends on finding the right person which enables us to better predict employee behavior. If turnover is high in your operation, can you produce hard data which points to the causes of that turnover?" Using the time-shared system, you can "create a special Time-Sharing Corp. thereby isolating them for analysis or review."

Consulting • Leasing • Software



EDP RESOURCES INC.

White Plains Place
New York, N.Y. 10601
White Plains, N.Y. 10601
914 426-3804

computer time

In Philadelphia - Call:
(215) LO 3-0215
6 Penn Center, Phila., Pa. 19103



TIME BROKERS INC.

National Brokers of Computer Time
380 Lexington Avenue
N.Y. 10017

FORTRAN FOR

INTERPRETING DISPLAY DUMP FOR IBM 360

Scan memory for instructions, CCW, EBCDIC characters, fixed point numbers, floating point numbers, generated bytes and requested words, and prints what it finds in an appropriate easy read format. This is a clean, compact program, in most ambiguous situations it is smart enough to make the same interpretation as an experienced programmer would make.

Write for more information and a sample memory dump. Price \$150.

Superior Computer Systems
P.O. Box 2871
New York, N.Y. 10001

"FORFLO" IBM 1130/1800 DOCUMENTATION SYSTEM

System Consists of 2 Parts:

— Requires FORTRAN statement numbers by five, adjacent all branch and I/O statement numbers accordingly. Replaces conventional unit numbers with variables for easy program conversion (user optional). Punches new source deck filled and numbered in columns 73-80.

— Flowsheets any 1130/1800 FORTRAN program from source deck. Shows DO loop nesting. Draws complete flowlines. Separates input and output to allow flowcharting during off-shift time.

"FORFLO" runs on any 8K, 1130 word and line printer or equivalent 1800. Runs in stacked job mode. No need to remove memory control cards. System supported and maintained.

Send a duplicate FORTRAN deck for free demo and more information. Price — \$480



SYSTEMS

DNA Systems
214 S. Stewart Ave.
Pitts., Michigan 48504
(313) 789-4402

Software & Systems Services
—Specializing in 1130/1800

PROMPT

Project Monitoring and Planning Techniques

A highly-responsive project control package which furnishes detailed reports to multiple levels of management to optimize decision-making and operations. PROMPT can reduce expense, identify in advance to enable rapid correction.

PROMPT provides:

- Detailed analyses of work performance
- Variance data from original estimates
- Summarized project analyses
- Detailing of staff utilization
- Analysis of overhead accounts
- Historical statistical tabulations of overall project and individual performance

Write or call: R. Dickinson

ARIES CORPORATION

Products Division
Western Division
P.O. Box 100
McLean, Virginia 22101
Phone (703) 253-6100

REDUCE THE COST OF COBOL PROGRAMMING

The "SYSCOM COBOL DOCUMENTATION SYSTEM" exploits the documentation capabilities of COBOL.

• ATTACKS THE REAL PROBLEM—THE SOURCE LANGUAGE.

Generates sequentially related paragraph names.

Can change data element mnemonics to descriptive data element names or generate sequential, record related descriptive names.

Produces paragraph name cross reference.

Produces data element cross reference.

• LESS EXPENSIVE TO PURCHASE AND USE THAN FLOW CHARTING SYSTEMS.

• CHANGES TO THE PROGRAM ARE FASTER TO IMPLEMENT SINCE THE DOCUMENTATION AND PROGRAM LISTING ARE ONE IN THE SAME.

For more information please contact

SYSCOM

A Division of
Republic Corporation
2409 Sepulveda Boulevard
Northridge, Calif. 91328
(213) 372-2181

A complete ENGLISH LANGUAGE RETRIEVAL SYSTEM compares to packages selling for \$10,000 and up. SAVES program time on one-time and repetitive reports. If you're re-writing or converting programs, Mr. System will replace report generators.

COBOL—DOS—32K minimum. Selects, Sorts, Accumulates, and Prints report to your specifications.

Installed by mail only \$2500 with complete User and Programmer Manuals.

Write:

Mr. System
Information Science Incorporated
New City, Rockland County, N.Y. 10956

Project Control for 1130 —
Precedence C.P.M.

2 to 4 times the speed and capacity (7200 Activities—80 LPM) of the Library Program. Includes Dollars/Activity, Cash Flow, Forecasting, Resource Leveling, Pay Estimate/Request, Summary Berchart, Change File, etc. \$4500 includes installation assistance. Write C.M.S., Box 90, Haddonfield, N.J. 08033 for Full Details.

WHY GUESS? MEASURE!

Use SIMS/360 products to determine:

- Program Efficiency
 - Configuration Balance
 - I/O—Compute Ratios, etc.
- Available for lease or purchase, OS or DOS.

For details, contact —

Boole & Babbage Inc.

(415) 961-4440

1121 SAN ANTONIO ROAD
PALO ALTO, CALIF. 94303

Data & Information Products, Inc. representatives in:

New York Atlanta
Chicago Kansas City
Detroit Philadelphia
Milwaukee Cleveland
Dallas

Selective Information Retrieval System

A new computer program that allows you to:

- Select records from any sequential tape or sequential disk file

Save specific information from the records selected

Use any condition of selection

• Begin fields used in conditions of selection in any byte of a record

• Use up to fifty "AND"/"OR" conditions in selecting any class of record

Designed for 8/360, DOS, 32K and up. Send for full details.

PRICE: Upon Request.

Contact: L.H. Baker

Pioneer Data Systems

1208 Mulberry Street

Des Moines, Iowa 50308

COBOL MAIN-GEN

Generates Edit Verification and File Maintenance programs in Cobol. Complete operational systems in ONE HOUR!

Scorpio Data Systems Inc.

Tallman Center

Tallman, New York 10662

(914) 367-8846

AUTOFLOW

An automatic flowcharting system that produces 2 dimensional flowcharts directly from Cobol, Fortran, PL-1, and assembly language input.

Autoflow also produces listings of syntax errors, logic errors, data-name cross reference, label for paragraph or statement number, cross reference index, and alphanumeric label index. Available for: IBM 360 systems, H200 systems, Spectra 70 systems, IBM 1400 and 7090 systems. Write for literature and free demonstration.

PRICE: Upon request

Contact: Applied

Data Research

Route 206 Center

Princeton, N.J. 08540

Are your information management programs tying your computer up and your programmers down? Untie both with...

sim*
GENERALIZED INFORMATION MANAGEMENT SYSTEM

GIM enables you to:

• Significantly cut programming time to get an information management system on the air.

Deal with one integrated program rather than a series of many interdependent programs.

Establish data bases consisting of highly interrelated but different files. Query your data base in English.

GIM is machine independent. It can be used on any computer that meets small core and random access storage requirements. Your data management personnel can learn to use GIM effectively themselves within two weeks.

Search knowledge of programming or computers.

GIM is available now! Inquire today about our leasing plans.

Write Roger Wise, TRW Systems Group, Dix Space Park, Redondo Beach, Calif. 90278.

TRW

*IBM & Copyright TRW INC.

QUERY

- Immediate Access to Information
- Searches & Retrieves Fixed & Variable Data
- File Format Independent
- No Modification to your files

OPTIONS:

- Retain, Tally and Sum
- 30 Day Free Trial

AUTO-LEX

- Thesaurus File Generator
- Thesaurus File Maintenance
- Add New Terms
- Delete Old Terms
- Alter Term Relationships

OPTIONS:

- Hierarchical, Permuted, Photo-Composition
- Index Presentation
- 30 Day Free Trial

INTERRUPT ANALYZER

DOS/TOS

- Over 30 Sold to Major Users
- Increases Program Productivity
- Saves Production Jobs
- Stops premature cancellation of program run caused by program or debug.
- Analyzes will display or store instructions and data, take memory dumps, etc. from console typewriter.

Price \$750

Write or Call:

COMPUTER RESOURCES CORPORATION

8838 Redmond Drive
Redmond, Virginia 22111
(703) 386-6100

360 Payroll System — 100% COBOL —

Series of 23 programs which process hourly and salaried rates for a multi-company environment. Liberal deductions, facilities for labor distribution reporting. Complete the system in 2 to 3 1/2 days. Excellent documentation. Runs on IBM 360 with 24K and 48K. Only \$1500. This system is now being used and has proven highly successful.

PRICE: \$5,000.

Lewin-Townsend Service Corporation
One Decker Square
Bala Cynwyd, Pa. 19004

FIRST (Financial Information Reporting SysTm) COBOL

G/L & statement preparation system — does not dictate chart of accounts, account numbers or statement formatting. It is a parameterized system producing journals, trial balance, G/L posting, balance sheet, P&L, budget & prior year comparison.

Running on H200, 360/30, 82500.

\$20,000 purchase, franchise \$5,500, plus 5% of gross sales.

Contact: Woody Stein

Computer Resources Corporation

P.O. Box 4321, Wilson, Conn. 06097

Phone: (203) 782-8387

360/20 — UNIVAC 9200 & 9300 GENERAL ACCOUNTING LEDGER SYSTEM

designed for 8K card system with Reader, Punch and printer. Produces Journal Voucher Balancing, Trial Balance, General Ledger, Budget vs. Actual, Comparative Reports and Financial Statements. Fully operational for 1 year. Send for full details. Price: Upon request.

Contact: Ron Achermann

P.O. Box 1954

Santa Ana, Calif. 92705

PROJECTOGRAPH

Software to display 3-D surfaces on your computer's plotter

• Completely operational now

• Operates on any computer with Fortran and any on- or off-line plotter

• Isometric/Oblique or Perspective packages — \$2000

• Both packages — \$3000

Call Collect: Hal Diskson

(213) 451-8778

Technology Service Corporation

225 Santa Monica Boulevard

Santa Monica, California 90401

360 COBOL (Disk/Tape)

PAYROLL/PERSONNEL SYSTEM Series of 16-22 easy-to-maintain programs. Handles multi-company data, hourly & salary payrolls. Unique union matrix (if required) to process unionized union or special pay configurations. Complete file maintenance, documentation, JCL, etc. Several versions available. Contact us about references, custom modifications and detailed info. All versions \$4,500.

COMMARC SYSTEMS CORP.

7768 Market Street

San Francisco, Calif. 94108

(415) 266-6379

Rapid Access Management Information System

RAMIS retrieves information, manages files, generates reports automatically on your 360 OS.

Call: (301) 656-2870

MATHEMATICA

4905 Del Ray Avenue
Bethesda, Md. 20014

CAPITAL ASSETS ACCOUNTING

Fully documented 15 program COBOL system with installation support to \$4000. Write:

NATIONAL
SYSTEMS PLANNING, Inc.
3166 Maple Drive
Atlanta, Georgia 30306
(404)233-1601

SPEED PROGRAM PRODUCTION WITH BOCOL

The New, Simplified Computer Language that Solves Programming Problems

Program production bogged down? BOCOL (Basic Operating Consumer Oriented Language) speeds production by solving many of your programming problems.

BOCOL is simple and streamlined — to get you from program creation to program production faster.

NOVICE programmers can write BOCOL statements immediately. BOCOL's clear and precise statements relieve experienced programmers of routine jobs. BOCOL is a true one-pass compile and process language. It requires far less keypunching time, no excessive computer time for assembling and compiling. BOCOL saves time, saves money, simplifies operations. We'll show you how it takes the pressure out of being busy. Fill in and mail the coupon below.

Finmac, Inc.

2800 North Central Expressway, Suite 2000
San Jose, California 95131
Phone: (415) 261-1000
Telex: 154000
Fax: (415) 261-1000

NAME _____
TITLE _____
COMPANY _____
ADDRESS _____
CITY _____

WHO SAYS PEOPLE DON'T READ CLASSIFIED ADS

IBM CCAP binary synchronous support

Multipoint Leased Line
360/360
380/2780

Headers and Text Up to 4800 Baud
BSC Error Overlay
EBCDIC or USASCI Codes
Transparency
Integration Assistance

contact
Mr. Warner Sharkey
(302) 762-5605

International
Telecontrol Corporation
4300 Pine St.
Wilmington, Del. 19802

"Problems? Our biggest problem is deciding what to do with our money!"

If analyzing the benefits and risks of capital investments is a problem at your company, why not let a computer cut it down to size?

Project Return Evaluation Program

PREP 600

Product Software by MSS

PREP is a computer program for computing return on investment and evaluating the economics of capital investment projects under conditions of uncertain revenues and costs. From raw technical and financial data, PREP builds an economic model of the project and computes any of three return indices: Discounted Cash Flow, Present Worth Ratio, Years to Payoff. Formatted report output also includes: Cash Flow Profile (Absolute and Discounted), Cash Flow Buildup, Revenue and Cost Projections and Sensitivity Analysis on Selected Economic Factors.

PRODUCT BRIEFING

April 15, Washington, D.C.
April 16, New York

For details, write or call:

MR. DAVID S. HERSHFIELD
Vice-President

MANAGEMENT SCIENCE SYSTEMS

1530 East Jefferson Street
Baltimore, Maryland 20852
(301) 427-1840

ADVANCED MANAGEMENT SYSTEMS, INC.

Presents AMS

TASK REPORTING PROGRAM (TRP)

A job status reporting system for use by supervisory and management personnel — operational on the IBM 360.

TRP can be used for such tasks as:

- Project labor reporting and control
- Task scheduling and planning
- Department scheduling and evaluation

TRP advantages are:

- Uses your present cost detail information
- Operates on a weekly or monthly cycle
- Provides complete detail and summary report information
- Comparatively inexpensive

The Job Information
Cut of
This

ADVANCED MANAGEMENT SYSTEMS, INC.

1833 E 17TH STREET
SANTA ANA
CALIFORNIA 92701

PATCH

ASSEMBLER LANGUAGE PROGRAMS

360 DOS Users — Investigate OOPATCH — an aid in patching Assembler Language Programs

Replace Instructions

Add Instructions

No Re-Assembly

No Re-Link-Edit

Use Pseudocode Op Codes (MVC Not D2)

No Conversion to Base and Displacement Addressing

Save Computer Time

Save Programmer Time

Learn: \$300 First Year

\$ 35 Each Renewal Year

For Information Write to:

IX SOFTWARE, INC.
2305 Tampa Bay Blvd., # 202
Tampa, Fla. 33607

IBM 1130

SOFTWARE & PROCESSING INVENTORY & PRODUCTION CONTROL, ACCOUNTING, SCIENTIFIC & PLOTTING DATAGRAMMES

1426 Pine Ave.
Long Beach, Calif. 90814
(213) 432-8247

SCORE

Information Retrieval & Reporting System

does its thing with

IBM 360
Honeywell 200
RCA Spectra 70
UNIVAC 1108
Burroughs 5500

25 major users ordered it, are using it, are happy with it.

Seminars:
April 11—Wash., D.C.
April 16—Phila., Pa.
For details contact
Robert P. Wolk at
215 WA 5-8424

Atlantic Software Inc.

Software Marketing Specialist
Lafayette Building, 510 Chestnut St.
Philadelphia, Pa. 19106

acopp

Abbreviated COBOL Preprocessor

If your COBOL coding time exceeds one man hour per day, you should be using ACOPP.

- ☐ Reduces coding effort 50%
- ☐ Reduces keypunching 50%
- ☐ No retaining required
- ☐ Uses abbreviated notations for COBOL keywords
- ☐ Internizes abbreviations and COBOL keywords

SYNERGISTIC SOFTWARE SYSTEMS, INC.
8215 Outpost
Houston, Texas 77056
713/771-2483

"I've got lots of data... but no information!"

If information you need for day-to-day decisions is being hoarded by your IBM 360, Spectra 70, or IBM 1401 computer, investigate

EASYTRIEVE 300

Product Software by MSS

EASYTRIEVE is an information retrieval and reporting system that bridges the gap between computerized information files and executives, managers, and supervisors (with or without computer experience) requiring access to the files for day-to-day business decisions.

PRODUCT BRIEFINGS

April 15, Washington, D.C.
April 16, New York

For details, write or call:
MR. MELINDA T. KATZ
Vice-President

MANAGEMENT SCIENCE SYSTEMS

1530 East Jefferson Street
Baltimore, Maryland 20852
(301) 427-1840

Subscribe To
COMPUTERWORLD
\$9.00 - 1 Year
60 Austin Street
Newton, Mass. 02160

quik-plan

A new computer program to assist managers, engineers and planners, even if they aren't familiar with computers.

- ☐ Provides a variety of data manipulation techniques and report categories—plus automatic charting
- ☐ Handles any computational procedure involving rows and columns of data
- ☐ Handles any budget planning, economic forecasting, operational planning, investment analysis
- ☐ Available on both the 5/360 and 1130
- ☐ Easily modified to access models "nest if" access

SYNERGISTIC SOFTWARE SYSTEMS, INC.
8215 Outpost
Houston, Texas 77056
713/771-2483

3 DAY PROGRAMMING SERVICE? 3 DAY PROGRAMMING SERVICE!

Yes! and pressure! Last-minute requests? Quarterly and annual jobs not yet programmed?

We will deliver the output within 3 days of receiving your specifications. We ship 3 days, we mean 3 days. The cost will be no higher than you pay for far slower, conventional programming assistance.

Call 212-751-5280 today for details on a fundamental breakthrough in programming that brings software out of the stone age.

IREMTECH COMPUTER SYSTEMS, INC.
485 E. 17th Avenue New York, N.Y. 10002 • 212-751-5280

April 9, 1969

Page 19

CCS Drops Its Ban on Deposits

NEW YORK—Central Certificate Service (CCS), the New York Stock Exchange's answer to automating street-name transfers, resumed taking deposits again last week, after a couple of weeks' inability to handle the additional input volume.

But their problems don't appear to be over. The March 31 Wall Street Journal reported that the chief of the exchange's computer system, Robert B. Grant, had resigned. He had held the post for seven months. Grant was under paid cited policy differences with exchange leaders in the area of CCS development.

These leaders are the same people as those who, collectively as Exchange governors, and individually as members of their firm, have funded in-depth studies of the automation of back-office services.

CCS doesn't handle securities registered in individual or institutional owners' names. As far as the transfer of institutionally-owned securities, Computerworld has previously reported substantial progress, including two private efforts, and one by the Exchange (CW, April 2).

Burroughs 2-for-1 Split Is Approved

Burroughs Corp. directors have approved a two-for-one stock split and an increase to 30 million shares from the 12 million of common previously authorized.

Ray W. Macdonald, president, before the meeting indicated that the company may enter the time-sharing market.

Burroughs, according to Macdonald, has experimented with the concept of time-sharing with the establishment of several data centers in order to "obtain economies" in the data centers.

"We will shortly be making further announcements in connection with our program to establish time-sharing and data processing centers in a number of locations in the United States and abroad," he added.

Macdonald indicated optimism in that first quarter and full-year results will exceed 1968's, but also mentioned that the company may have to borrow to finance stated outlays of \$250 million in 1969.

Burroughs is planning outlays of \$100 million for new plant, tools, equipment, and modernization, and \$150 million for equipment leasing.

Macdonald added that incom-

ing orders for commercial equipment of all types will be equal to or "somewhat above last year's level; but government contracts will probably be below last year's level."

For all of 1969 was stressed by Macdonald as he concluded that Burroughs would "show strong growth in revenue and profit."

ROCHESTER, N.Y.—The record date for a proposed two-for-one stock split was changed to May 16, 1969, by the directors of Xerox Corp. at their meeting on March 24.

Shareholders of record as of 5 p.m. EDT on that day would receive two additional shares for each share of Xerox common stock held. The distribution is contingent on shareholder approval of an increase in authorized common stock.

The new record date coincides with the proposed merger date of SDS into Xerox.

If approved, delivery of the

Electronic Data Systems Plans Tender Offer for Collins Radio

DALLAS—Electronic Data Systems, with 1968 sales of \$7.7 million, is presently planning to make a tender offer to the shareholders of Collins Radio Co.

Collins had sales of \$447 million in 1968, or about 55 times greater.

Collins quickly indicated that, "Based upon an initial evaluation of the assets, sales, and earnings of the companies and their relative growth potential, the offer didn't appear to be advantageous and wouldn't be supported by management."

The offer to the Collins stockholders involves the exchange of Electronic Data common, with a market value of \$65 at the time the exchange offer commences, for each share of Collins common tendered, but with a maximum of one and a half Electronic Data shares for each Collins share.

Electronic Data didn't indicate the percentage of shares it is seeking through the offer, however, the value of \$675 of Collins or on 1,483,713 of the shares outstanding, would be \$96.4 million.

Ross Perot, president of Electronic Data, said that his com-

pany will file a registration statement with the SEC, and that Electronic Data expects to make the exchange offer in April.

"Working together, Electronic Data and Collins," said Perot, "would be able to substantially accelerate the intelligent use of and availability of operational business information systems."

"As a team, EDS and Collins would be able to develop com-

puter hardware and communications systems with the latest technology, and creativity unique to Collins," added Perot. Collins reported net income of \$13 million on sales of \$447 million in the fiscal year ended July 31, 1968.

Net income of Electronic Data was \$1.6 million on sales of \$7.7 million in the fiscal year ended June 30.

New Management Drafts Expansion for Realtime

NEW YORK—Increased capacity, nationwide expansion, and the creation of special industry programs are the new plans outlined for Realtime Systems, recently purchased by Chemical New York Corp., the parent holding company of Chemical Bank.

Arthur P. Ringler, newly elected president of Realtime and an executive vice-president of the holding company's bank, has revealed plans "to double the capacity of Realtime with the \$500 series computer."

"The resulting dual system should give our users faster service as well as access to a backup system in case of down-time," he said.

Ringler viewed the intention to market Realtime services on a nationwide basis, and "offer our present users an opportunity for closer coordination with subsidiaries operating in other parts of the country."

The new president acknowledged that Realtime is "presently working in several industries on special programs that will solve unique industry problems via computer program-sharing, and our plan is to develop these specialized industry programs in technical, financial, and commercial areas."

Ringler said that Realtime Systems, Inc. will operate as a subsidiary of Chemical New York Corp. No purchase terms were announced.

Xerox Split Record Date Is Changed

NEW YORK—Plans to form a parent holding company, which would acquire the computer-oriented companies, and a name change have been announced by the Electronic Computer Programming Institute, Inc.

The company now operates schools for training data processing personnel.

The plan includes an agreement to merge the company and a privately owned concern, Computer General Corp., into a holding company that would be named Computer General Corp., according to the president, Sidney Davis. The present Computer General has no operating assets.

Computer General is comprised of some capable people who will be basically responsible for seeking acquisitions, said Davis. Although no specific acquisitions are under consideration now, he expects something soon.

Nelson E. Selveron, president of Computer General, was a group vice-president of Control Data Corp. subsidiary, C-E-R. Chairman of Computer General is Francis H. Hoge, Jr., vice-

president of D.H. Blair Securities Corp., New York.

The stockholders of both companies must approve the merger and the arrangement of accepted acquisitions. Davis said he hopes to present the plan to stockholders in three to eight months. Final terms have not been determined.

ECPI Seeks To Gain Computer Companies

able acquisitions. Davis said he hopes to present the plan to stockholders in three to eight months. Final terms have not been determined.

Datatab Merger Accord Involves Stock Worth About \$7.9 Million

NEW YORK—Datatab, Inc. and Tabulating and Data Processing Corp., both publicly owned, New York City-based computer services companies, have announced that an agreement in principle has been reached to merge. Datatab will be the survivor.

The proposed merger involves an exchange of stock valued at approximately \$7.9 million.

The proposed merger agreement is subject to approval by stockholders of both companies and to favorable tax rulings.

Merger terms call for Datatab shareholders to receive two shares of stock of the new merged company for each Datatab share presently held.

Tabulating and Data Processing stockholders, it was announced,

will receive one merged Datatab share for every TDP share presently held.

Datatab, founded in 1960, specializes in the marketing, survey, statistical, optical scanning, and computer-letter files. Datatab reported net earnings of \$196,266, equal to 67 cents per share, on sales of \$2,005,362 in calendar 1968.

Tabulating and Data Processing Corp. specializes in accounts receivable and law office analysis services. TDP, which was founded in 1959, is expected to report sales in excess of \$900,000 in the fiscal year ending March 31, 1969, up from \$555,569, and net income of \$19,659, or 7 cents per share reported at fiscal 1968 year-end.

Two French Banks Will Help Start Diebold Subsidiary Firm in France

PARIS—Two French banks, Societe Generale and Banque Rothschild, have signed an agreement with Diebold Computer Leasing, Inc., to establish a subsidiary of Diebold in France. The new company will acquire and lease computers and related equipment in France.

Diebold will own 80% of the new company, and the two French banks will own 20%.

The French company is prepared to acquire lease value in excess of \$20 million, and will begin operations immediately.

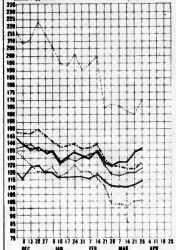
The Societe Generale is one of France's largest and best known banks with extensive interna-

tional operations, according to Diebold. The Banque Rothschild is also one of the most prominent financial institutions in France and through its holding company, Compagnie du Nord, has important interests in steel, iron, transportation, oil, and tourism.

The French affiliate will receive substantial administrative and consulting support from Diebold France S.A., an affiliate of Diebold. The Diebold Group, Inc., the international management consulting firm specializing in business applications of computer and other advanced technologies.

Computer Stocks Trailing Index

Computer Systems	Software & ISP Services
Peripherals & Subsystems	Leading Companies
Supplies & Accessories	ITW Composite Index



Software Leads As All Sectors Post Increases

By V. J. Farmer
CW Staff Writer

All *Computerworld* trading summary indexes rose, as did the general stock market, during the week ended March 28. Software outpaced the entire group with a gain of 10 points (6.2%) to 170.1, pushing the CW composite stock index up 6.3 (5.1%) to 129.14.

Peripherals & Subsystems posted the highest gain, 3.3 points (2.8%) to 123, followed by gains of 2.3 (1.8%) to 136 for Computer Systems, and 1.9 (1.7%) to 114 for Supplies & Accessories.

The Leasing sector gained 0.8 (0.8%) to 101.45 with a correction that adjusted a CW mistake in last week's table. Leasco's percentage change from base has also been corrected to 119.1 from an incorrect -12.24 last week.

During the same week, the Dow Jones industrial average climbed 15.5 points to 935.48; the NYSE composite index moved up 0.98 to 56.85; Standard and Poor's industrial average rose 2.26 to 110.91; the Amex price index gained 53 cents to \$30.53; and the NQB over-the-counter industrial index gained 0.61 to 392.81.

Data Communicators

Three data communication companies are recommended in Goodbody & Co.'s monthly letter for April.

Goodbody believes Western Union is "the best direct means of broad commitment in data communications," and also recommends Mohawk Data Sciences and Conrac Corp. as businessman's risks.

Goodbody maintains that Western Union, pending acquisition of American Telephones' TWX system, "will become the dominant record communication carrier in the U.S.," and appears "to have the prospects of benefiting most from the communications revolution."

Other factors Goodbody pointed out are the present revamping of Western Union's traditional operations with continuing emphasis on automation and the expansion of "individually leased systems based on the existing systems built for the Defense Department, such as Sicom (which transmits buy-sell orders, execution reports, and corroborative data between brokerage office headquarters and branch offices).

A joint operation, recently established

COMPUTER STOCKS TRADING SUMMARY

WEEK ENDED MARCH 28, 1965

[illegible]

a. Since 10/18/68 *Companies included in Computerworld's stock trading index for each sector

with Computer Utilities, Inc., to engage in a broad range of time-shared computer services should also prove advantageous, Goodbody said.

Conrac Corp. is a diversified manufacturer which is currently moving into the manufacture of advanced computer terminals for airline and hotel reservations as well as other computer-oriented applications.

Formerly Giannini Controls, Conrac, according to Goodbody, has received a \$7

million order for its computer terminals from Burroughs, an order from Digital Equipment, and could receive orders from other computer manufacturers in the future.

Mohawk's outstanding record of growth, said Goodbody, has developed from the company's early entry into the data input terminal business.

But Mohawk's stock has been under market pressure stemming from consolidation of prior losses, a slowdown of

orders from National Cash Register due to excessive NCR inventories, and seasonal factors and numerous announcements of competitive products.

Goodbody believes the price of the stock is now fully discounted and cites the company's excellent management, internal controls, and a strong sales and service organization as positive factors which they consider a prime requisite now that Mohawk input devices are no longer unique.

New Service Bureau Plans 6 Centers, 21 Franchises

NEW YORK - Data Power, Inc., a company incorporated in New York, will provide packaged computer services from locally managed franchise centers.

Arthur L. Left, president, has experience in establishing computer information services with Western Union and General Telephone Electronics, and has been a practicing attorney.

Data Power, Inc., at 711 Third Ave., initially plans to establish six information processing centers that will connect to a centrally located IBM 360/40 computer. The first center will open in Manhattan in mid-April, then five more will be located in Philadelphia, Hartford, Conn., Fairlawn, N.J., and Rochester, N.Y.

From these company-owned centers, Data Power's district managers will place 21 additional franchise centers. Each will be equipped with MCR keyboard, transmitting/receiving stations and printers, and will provide localized payroll processing, accounts receivable, inventory control, and other services to small- and medium-size businesses.

Programming for Banks Object of Software Firm

CHEERY HILL, N.J. - Computer Dynamics Corp., a new software consulting firm, has been formed to specialize in computer programming systems for banks, insurance companies, brokerage houses, and other financial institutions.

President of Computer Dynamics is Saul Hanges, a former programming manager for RCA. The company recently established a New York office at 501 Fifth Ave.

Multi-Language Flow-Charts for Dalls

DALLAS - A new computer software company, Systems, Software, Services, Inc., will concentrate initially on providing a versatile and comprehensive software flowchart package, utilizing a number of different computer languages, to business and industrial data processing departments.

The new company will be temporarily located at 713 Stemmons Tower West until the completion of their new building on Stemmons Expressway near Oak Lawn in a few weeks.

President of SSS is Robert B. Branch, former director of data processing at LSC Optical.

Company Will Develop Time-Sharing Applications

NEW YORK - Time Sharing Sciences Inc., an independent consulting firm, is being formed to specialize in developing time-sharing applications software, and will act as an interface between the time-sharing vendor and the user.

The applications developed are for use by nonprogramming personnel in solving specific problems.

The company, with its offices at 1180 Avenue of the Americas, is engaged in the development of

both proprietary and contractual software.

Data Processing Services Offered for Rochester

ROCHESTER, N.Y. - United Computer Corp. has been formed to offer data processing

New Companies

services to medical, educational, and business groups.

Services will include systems analysis, design and implementation, surveys and feasibility studies, systems audits, review and development of documentation standards, programming, information services, and seminars.

Dr. Jerome Glazer has been named President of the new facility.

Company to Specialize In On-Line Data Systems

DALLAS - A privately held corporation, Computer Information Management Co., has been formed to provide on-line information systems technical assistance, data processing education, and computer systems design and programming.

David S. Willis, president, previously was with IBM.

Long Island to Be Covered

DEER PARK, N.Y. - Computype, Inc., a new company, will offer software development, service center, and time-sharing services on Long Island.

The formation of the company was announced by Donald E. Lees, president, who indicated that Computype, Inc. was developing specialized software packages, to be used by the medical profession, government, and general industry. The company plans to install its first computer in March, 1969, for the service center. In the third quarter of this year, the company plans to install the time-sharing hardware.

Personnel Is Main Item

PINEHURST, Mass. - DeBAR Corp., a newly-formed company, offers technical personnel services and subcontracting to the computer industry.

Richard C. Barbieri, president, said that the company will bring a new concept to this area; that is, high quality personnel services and production at low cost. Negotiations are now under way for office and engineering space.

DOS Multiprogramming Services Available in NYC

NEW YORK - EPG Computer Services, Inc., has organized a wholly-owned subsidiary, EPG Computer Centers Corp.

The new subsidiary is now processing application programs for current clients and is selling time on its IBM 360/50, which is located at 65 39th St.

The Center offers clients a DOS multiprogramming system with three partitions, utilizing Power, and OS with MFT-2.

Earnings Report

DATRONIC RENTAL CORP.

6 Months Ended Dec. 31	1968	1967
Revenue	\$1,371,239	\$473,067
Earnings	113,987	64,357
Shr End	.21	.13

CODEX CORP.

6 Months Ended Dec. 31	1968	1967
Revenue	\$443,539	\$200,784
Earnings	\$12,171	(\$1,461)
Shr End	.02	—

a-No provision has been made for federal income tax due to carry-forward of prior years' losses.

DATA PACKAGING CORP.

Year Ended Nov. 30	1968	1967
Revenue	\$7,719,925	\$6,012,064
Earnings	435,151	413,981
Shr End	.61	.61

SCIENCES, INC.

6 Months Ended Jan. 31	1969	1968
Revenue	\$1,205,880	\$802,455
Earnings	126,793	97,507
Shr End	.13	.10

a-These figures are unaudited and subject to year-end adjustments.
b-Based on average shares outstanding during the period - 1,000,000 in 1968, 1,007,500 in 1969.

COMPUTER INDUSTRIES, INC.

Year Ended Dec. 31	1968	1967
Revenue	\$11,227,000	\$4,630,828
Earnings	930,000	280,346
Shr End	.27	.09

CYBER-TRONICS, INC.

9 Months Ended Jan. 31	1969	1968
Revenue	\$5,144,180	\$4,511,454
Earnings	21,055	52,978
Shr End	.13	.02

TECHNITROL, INC.

9 Months Ended Dec. 31	1968	1967
Revenue	\$5,896,236	\$11,416,007
Earnings	(135,980)	\$673,217
(Loss)	—	.49

a-Net income from operations.



specializes in leasing high quality

2nd Generation Computer

Tape Systems



We have an immediate

need for 1400 or 7000 series systems with

729 II, IV, V, or VI's.

Will purchase tapes individually or in quantity.

COMMERCIAL COMPUTERS, INC.

7855 IVANHOE AVE., LA JOLLA, CALIFORNIA 92037 • (714) 454-7161
425 BROAD HOLLOW RD., MELVILLE, L.I., N.Y. 11746 • (516) 293-7278

MASSACHUSETTS

COMPUTER SERVICE IBM 360

3 Shifts Per Day
7 Days A Week

Commutant, Full Service
128 Location

- 66K/30, All Features
- 660K/30, Tape, 7 or 9
- 3 2311 Disks
- 2 Selectors, 1 Multiplexer
- Keyboards, Verifiers, etc.
- Programmers and Operators
- Office, Storage, Telephone
- Co/fee, Complete Facilities
- Supplies and Systems
- Emergency Services
- Rates Tailored To Your Needs

INFORMATION DYNAMICS CORPORATION

80 Main St.
Reading, Mass. 01867
Telephone 617-944-2224
24 Hours A Day

Key Punching Your Hang-up?

That's our Bag!

- Low rates—Hi Quality
- Key Punching
- Verifying
- Conversions

No Job Too Small
Free Pick-up And Delivery
For Estimates Call
617-746-6210

AUTO-COM, Inc.
16 Main Street Ext.
Plymouth, Mass. 02360

CHICAGO AREA

160-1075R
1610-700 SIMULATION
AND COMMUNITY
ALL 360 COMPUTERS
DRIVE AND 1400 CDS
YOUR ORIGINATOR OR OURS

COMPUTIMEY OF CHICAGO
205 WEST MADISON
CHICAGO, IL 60604

IBM 360/40, 66K, Five Model
3 Tapes, Two 2311 Disks
1403 N1 Printer, 2540
Rdr./Pch., 2nd Shift 3rd Shift,
and Weekends, Call Mr. Win-
land at 312-236-4700.

PHILADELPHIA

360-30, 32K, with Two 2415
Drum Units, three 2311 Disks
and 1400 CDS
Short runs on very short notice,
large blocks of prime time avail-
able.
Ask for Mr. Sorath or Mr. Wood.
215-WH 7-7580

UCC Applies for Listing On New York Exchange

DALLAS—University Com-
puting Co.'s board of directors
has approved a plan to apply for
listing on the New York Stock
Exchange.
UCC, founded in mid-1963,

has been publicly owned since
late 1965.

The company expects 1969
revenues will be about \$100
million from its computing ser-
vices businesses and its computer
equipment manufacturing and
leasing subsidiary.

The UCC board also approved
in substance the plan announced
earlier to establish public owner-
ship of the company's education
affiliate, The Academy of Com-
puter Technology, by distrib-
uting a dividend to UCC share-
holders in the form of Academy
stock.

The plan is subject to further
refinement, but it is expected
that preparation of a prospectus
and satisfaction of legal and
regulatory requirements would
permit a dividend distribution to
be made in June or July.

ALABAMA

Mohawk Data and ICL Agree
To Patent Cross-License

IBM 360/50

256K/4 Tapes 2314 (8 Disks)
Rates \$100-\$150 Per CPU
Hour Includes:

- Operators
- Working Tapes and Disks
- Cards and Paper Allowance

Time Available on All Shifts
All Days

GCS

General Computer
Services, Inc.
Huntsville Industrial Center
P.O. Box 4163
Huntsville, Alabama
(205) 539-9492

N.Y. AREA

Rockland County
IBM 360/30, 65K, Tape-
Disk, DOS-OS, full
compatibility. Call
W. E. Berry (914) 634-8877
Information Science, Inc.

IBM 360

32K, 4 Disks, 1403, 2540, A
brand new system featuring
COBOL, FORTRAN, AS-
SEMBLER RPG, PL/I com-
plete 1401/1440/1460 com-
patibility. We have large
blocks of time available on
second and third shifts and
we will offer big discounts for
large quantity, long-term pur-
chase. Economical, plenty of
power. Ideal for heavy print
jobs or for the software house
that can't afford a whole
machine. We will tailor a re-
sident pack to your require-
ments. Limited office space
may be available at reason-
able rents.

Call Immediately
(212) 687-3406

DIRECTED RESEARCH, Inc., 22
W. 34th Street, New York 1, N.Y. 10018,
a company which is engaged in
computer program development
and, under license, 150,000 shares
of common stock. Proceeds, at \$10
per share, intended for payment of
the company's professional and ad-
ministrative staff, development of
proprietary computer programs,
completion of existing software com-
puter programs for use on time-sharing
computer systems, promotion, and
general corporate purposes. No
underwriter involved.

KEY PUNCH COMPUTER
TEMPORARIES, Inc., 9 W. 61st St.,
New York, a company engaged in
temporary personnel placement,
equipment leasing, keypunch and
verification service, franchising and
management personnel services, filed
to register 125,000 shares of com-
mon stock. Proceeds, at \$8 per share,
will be used to repay a bank loan, to
acquire an additional 132 keypunch
and verifier machines, working capi-
tal, and other purposes. The under-
writer is Barclay Securities, Inc., 80
Broad St., New York.

INFORMATION SYSTEMS
CORP., 1700 K St., N.W., Wash-
ington, D.C. 20006, a company which
develops and provides information
systems design and analysis, develops
and provides proprietary programs
and systems computer software or
the analysis and programming neces-
sary to utilize computer hardware,
and provides time-sharing, data pro-
cessing, and data conversion ser-
vices, filed to register 235,000 shares
of common stock. Proceeds, at \$8
per share, will be used to acquire an
educational and commercial prop-
rietary system comprised of several
applications programs, salaries, ex-
penses, and equipment rental. It also
will use an additional time-sharing office
space, develop computer programs,
computer programs, to expand sys-
tem analysis and programming staff,
and to provide additional working
capital. The underwriter is Kluger,
Ellis & Mann.

STRATEGIC SYSTEMS, Inc., 604
Third Avenue, New York 10016, a
company which is engaged in the
operation of data processing and com-
puter systems and the design and con-
struction of environmentally-controlled
computer rooms, filed to register
150,000 shares of common stock.
Proceeds, at \$10 per share maximum,
will be used for the repayment of a
bank loan, the purchase of the SSI
Washington, D.C. location, purchase
of various equipment, working capi-
tal, and general corporate purposes.
The underwriter is Gregory & Sons,
40 Wall St., New York.

AMERICAN AUTOMATION
TRAINING CENTERS, Inc., 2022
Main St., Kansas City, Mo. 64108, a
company which operates a data pro-
cessing school and which intends to
operate a service bureau to utilize the
equipment it uses for its school, filed
to register 100,000 shares of com-
mon stock and 100,000 common
stock purchase warrants. Proceeds,
at \$6 per unit maximum and \$5 per
share, will be used to acquire a
manufacturing operation to produce
outstanding spare parts, lease im-
provements, development of the
company's training division, and
working capital. The underwriter is
The Bancorp. of Kansas, Inc., 300 Park
Ave., New York 10005.

EOP RESOURCES, Inc., One N.
W. 34th Street, New York 1, N.Y. 10018,
a company which leases computer
equipment and provides computer
software services, filed to register
322,500 shares of common stock.
Proceeds, at \$10 per share, will be
used to acquire additional de-
bentures, lease equipment, and
for other purposes. The underwriter
is offered for sale with common stock
purchase warrants, intended for re-
programming proprietary computer
systems for operation on computers
other than Univac III, rental of an
IBM 360/30 computer system, and
equipment, working capital, and gen-
eral corporate purposes. The under-
writer is Hornbush & Weiss,
Hempstead, N.Y., 11540, New York 10004.

GEODATCO, 20 Nassau St., Prince-
ton, N.J., a company which applies
computer technology to areas of ad-
vertising, marketing, and marketing
research, filed to register 100,000
shares of common stock. Proceeds,
at \$5 per share maximum, intended
for reprogramming proprietary com-
puter systems for operation on com-
puters other than Univac III, rental of an
IBM 360/30 computer system, and
equipment, working capital, and gen-
eral corporate purposes. The under-
writer is J. & L. Hamborg Co., 11
Broadway, New York.

DATA SCIENCES CORP., 150 W.
44th St., New York 10019, a com-
pany which is engaged in the lease
of data processing equipment, and
development and sale of information
systems, development and marketing
of "Program Check Card" and "Job
Use," filed to register 200,000 shares
of common stock. Proceeds, at \$5
per share, will be used for adminis-
trative expenses, salaries, and de-
velopment of new products, and
salaries, sales promotion, additional
technical equipment, working capital
and repayment of loans. The under-
writer is Dunhill Securities Corp., 21
West St., New York 10006.

SOURCE DATA AUTOMATION
INC., 15 W. 44th St., New York
10019, a company which develops
equipment and systems using a pro-
cess by which unutilized portions of
equipment are leased to other users
without further processing, filed to
register 200,000 shares of common
stock. Proceeds, at \$6 per share
maximum, will be used to acquire
salaries, establishment of a training
program, and general operating ex-
penses and tooling for these addi-
tional products, payment of capital
loans and indebtedness, and for
working capital. The underwriter is
Kelly, Andrews & Bradley, Inc.

CAMBRIDGE MEMORIES, INC.,
283 Newville Ave., Newtonville,
Mass. 02160, a company which de-
signs, develops, manufactures, and
sells memory systems for use in
data processing, filed to register
150,000 shares of common stock.
Proceeds, at \$10 per share, intended
for financing the establishment of
a manufacturing operation to produce
outstanding spare parts, lease im-
provements, development of the
company for research and develop-
ment in the memory systems indus-
try. No underwriter involved.

COMPUTER NETWORK SCI-
ENCES CORP., 1000 Eddie Allen
Ave., Melbourne, Fla. 32901, a com-
pany which proposes to design, de-
velop, manufacture, and market a
general-purpose data processing and
data communications system for use
in the data communications industry,
filed to register 250,000 shares of
common stock. Proceeds, at \$15
per share, will be used to acquire
development and operating expenses,
and for the purchase of equipment
for manufacturing, and marketing.
The underwriter is Winston, Perini
Beverly, Inc., 100 Broadway, New
York 10005.

PROGRAMMERS

Check action at fast-
moving bio-med-oriented
computer co.

Call Pres. at
(617) 729-8222

360 COMPUTER TIME

- 131K, 2 channel
- Fast 2311 disks
- Six 2401 card
- 5000/1500
- Full shift
- 2nd shift
- 3rd shift
- 4th shift
- 5th shift
- 6th shift
- 7th shift
- 8th shift
- 9th shift
- 10th shift
- 11th shift
- 12th shift
- 13th shift
- 14th shift
- 15th shift
- 16th shift
- 17th shift
- 18th shift
- 19th shift
- 20th shift
- 21st shift
- 22nd shift
- 23rd shift
- 24th shift
- 25th shift
- 26th shift
- 27th shift
- 28th shift
- 29th shift
- 30th shift
- 31st shift
- 32nd shift
- 33rd shift
- 34th shift
- 35th shift
- 36th shift
- 37th shift
- 38th shift
- 39th shift
- 40th shift
- 41st shift
- 42nd shift
- 43rd shift
- 44th shift
- 45th shift
- 46th shift
- 47th shift
- 48th shift
- 49th shift
- 50th shift
- 51st shift
- 52nd shift
- 53rd shift
- 54th shift
- 55th shift
- 56th shift
- 57th shift
- 58th shift
- 59th shift
- 60th shift
- 61st shift
- 62nd shift
- 63rd shift
- 64th shift
- 65th shift
- 66th shift
- 67th shift
- 68th shift
- 69th shift
- 70th shift
- 71st shift
- 72nd shift
- 73rd shift
- 74th shift
- 75th shift
- 76th shift
- 77th shift
- 78th shift
- 79th shift
- 80th shift
- 81st shift
- 82nd shift
- 83rd shift
- 84th shift
- 85th shift
- 86th shift
- 87th shift
- 88th shift
- 89th shift
- 90th shift
- 91st shift
- 92nd shift
- 93rd shift
- 94th shift
- 95th shift
- 96th shift
- 97th shift
- 98th shift
- 99th shift
- 100th shift

SSI

Call: 212/607-3100
L. Krasner
STRATEGIC
DATA CENTERS, INC.
25 West 42nd Street, New York, N.Y. 10017
A Subsidiary of
The American Data Systems Corp.
Incorporated under the laws of the State of New York
OFFICES ALSO IN WASHINGTON, D.C.

Time-Sharing Firm Installs First of Seven PDP-10s

BOSTON, Mass.—Computility, Inc., the commercial time-sharing subsidiary of North American Computer and Communications Co., has installed the first of seven computer systems scheduled for the eastern half of the United States this year.

The first of the PDP-10 systems, manufactured by Digital Equipment Corp., is housed in Computility's newly completed facilities in Boston's Government Center renewal area.

Computility says that it will offer a full range of time-sharing services to engineering, commercial, financial, and educational organizations.

The PDP-10 installed in Boston features 48K of core memory, two disk units, five DEC tapes, two magnetic tape units, printing and card-handling equipment, and a digital plotter. Initially, this installation will accommodate approximately 60 users simultaneously, according to Computility.

Optical Reader to Tape System Service Ready

DALLAS—A new computer input automation service, called Optimization and using an optical reader, now is available to subscribers in Chicago, Indianapolis, Milwaukee, Minneapolis, St. Paul, and surrounding metropol-

itan areas, who require typed or printed data to be read, translated into computer language, and reprocessed on magnetic tape for immediate computer processing.

Offering this new service is Corporation S, located at 4800 Scott St., Schiller Park, Ill. Corporation S, a Dallas-based company, is devoted exclusively to optical character recognition (OCR) and systems and software services.

The Optimization service in Chicago uses an Electronic Retina Computing Reader manufactured by Recognition Equipment Inc.

The equipment is a large-scale optical character recognition system used by organizations with very large volumes of computer input such as major airlines and credit card companies.

Even when original documents cannot be read directly, they can still be typed on standard office typewriters and converted to tape optically at less cost and with more accuracy than by conventional keypunching operations, according to the company.

Sperry Opens Univac Midwest Service Center

CHICAGO—A large computer and data processing service center in the Midwest has been opened in suburban Oak Brook by Sperry Rand Corp.'s Univac Division.

Known as the Univac Midwest Computer Center, the facility utilizes a Univac 1108 computer system as the keystone of its data processing services. The center's capabilities will enable it to process programs originating anywhere in the United States.

The new facility is one of a chain of new service centers, equipped with advanced equipment, being established by the Univac Information Services Division (ISD) throughout the United States. A similar center was opened in San Francisco two months ago and another one will be opening in Phoenix, Ariz. shortly.

Communication lines will connect the Midwest Computer Center to all of the ISD Centers in the United States including two in downtown Chicago.

In addition to the Univac 1108 System, other computing equipment at the Center includes a Univac 418 Computer System, 10 high-speed memory drum, 20 magnetic tape units, two Fastram mass memory storage units, three Univac 100 Systems, up to 35 communication lines, a high-speed printer, and a variety of other equipment.

Time-Sharing on 360/50 Available in Northwest

PORTLAND, ORE.—React, the computer time-sharing system developed by EDP Central, Inc., is now on-line and in operation.

According to James Brotherton, president, React can service 60 time-sharing users simultaneously through its IBM 360/50 computer with supporting hardware, and still have enough computer capacity left over to batch processing at the same time.

Services

Under the React system, subscribers use the computer through desk-size typewriter terminals located in their own offices.

Already on order for full installation is a bigger computer, an IBM 360/65.

When on-line, Brotherton said, it will handle twice the number of users and will double storage capacity of programs to be batch processed.

Printout Duplication

Service Added in Jersey

CHERRY HILL, N.J.—United Systems Inc.'s new headquarters will house the company's data processing service supported by an IBM 360/40 computer.

A computer printout service has also been added using a Xerox 2400 Continuous Forms Printer.

The Xerox printer accepts 15 in. by 11 in. continuous-form computer printout and makes any desired number of duplicate photographic copies in a compact, manageable 11 in. by 8 in. format automatically collated and ready for distribution.

Processing Available

in Portland, Ore.

PORTLAND, Ore.—The Seattle office of United Data Processing has begun full-scale operations with delivery of its first IBM 360 Model 30.

Among the data processing services being performed are medical clinic accounting, automotive parts inventory, accounting systems for manufacturing and distributing concerns, and professional association membership reporting for Seattle-area clients. UDP, founded in 1958, is owned by Randolph Computer Corp. of New York.

Niagara Frontier Covered

BUFFALO, N.Y.—Time-shared computer service to commercial and scientific interests throughout the Niagara Frontier region will be offered by Computer Task Group, Inc., according to Randolph A. Marks, president.

This new computer service will result from CTG's association with Applied Logic Corp., Princeton, N.J., developer of the AL/COM Time-Sharing Network.

CTG will continue its regular batch processing computer service, operationally in the Buffalo-Rochester-Toronto community since 1966.

Numerous customers will be served simultaneously by AL/COM's large computer facility at Princeton. Hookup is via input/output terminals operating over leased telephone lines.

Computer Tape Leasing Service Expanded in Pa.

PHILADELPHIA—In a program aimed at helping data processing companies in leasing managers' working capital, MACS Computer Accessories, Inc. has expanded its computer tape leasing service and made it a major function of this data processing supplies firm.

MACS will buy a company's existing tape library, then lease it back at a cost lower than that

for which the company itself could properly maintain it.

Tape leasing is designed to offer costly computer tapes through rental rather than purchase, allowing a company to adjust its tape library to meet fluctuating needs.

Louis DeSanto, president, says that leased tapes are delivered in like-new condition, and are guaranteed to perform efficiently or be replaced.

In addition, tapes can be reclassified to the exact track and density configuration under which they will perform.

EDP

OPPORTUNITIES

COMPUTER SALES/MGT.

EUROPE

518-30K BASE

Combine your systems marketing success with this prime client's international development. The professional (and financial) growth implications are obvious! Preference will be given individuals with solid sales accomplishments, (preferably with a mgr. or medium to large software house) strong in financial and BDP applications. Must not be in dealing at the executive level. Salary + cost of living + generous bonus + stock options (for entire family), storage, etc.

REGIONAL MGRS.

TERMINALS

EQUIPMENT

PARTICIPATION!!!

A good track record in peripheral equipment or machine time sales can provide the promotion you've sought. Earn up to \$18,000 + stock. Choice of locations. Will be public late 2nd quarter '69.

PROGRAMMERS-ANALYSTS SYSTEMS ENGINEERS

NOW!

We have 800+ prime openings nationwide. \$9-\$25 K range. Many provide immediate mgt. responsibility. Applications include but not limited to: implementation of large scale time sharing, banking, computer graphics, reliable communication, market support, advanced information retrieval, etc. Write or call John Cummings to discuss your Mgt. aims & objectives. Let us design and deliver a position around them.

NO COMPANY CONTACT WITHOUT APPROVAL OF APPLICANT.

ALL COSTS/EXPENSES

FEE'S AND RELOCATION)

ASSUMED BY

CLIENT COMPANIES

FOR MGT. INFORMATION

WRITE OR CALL COLLECT

202-223-2440

JOHN P. CUMMINGS

DIRECTOR

COMPLER DIVISION

Y.E.S., INC.

ROOM 830

1522 "K" ST., N.W.

WASHINGTON, D.C. 20005

Orders and Installations

Rutgers University, New Brunswick, N.J., has installed an IBM 360/67 to be used for research projects ranging from studies of medical light to analysis of rent-control legislation. An IBM 1130 will also be tied to the new computer.

Fuji Bank of Tokyo, Japan, has ordered a Univac 1108 Multi-processor Computer System valued at more than \$5.7 million, from Sperry Rand Corp., for use in processing foreign accounts and handling domestic exchange operations. Fuji also has another Univac 1108, and the Univac 418 system.

The Academy of Computer Technology, Salt Lake City, Utah, has installed a Univac 9200 that will, in the next three to six months, be beefed-up to a 9300 system with three tape drives. The system will be used primarily as a laboratory object machine for computer programming instruction.

Riley's Datastore International, Ltd., Calgary, Alberta, has ordered a PDP-10 computer system from Digital Equipment of Canada, Ltd., for on-line access to its petroleum well information library.

Decision Technology Inc., Cambridge, Mass., has ordered a Control Data 3150 computer system for on-line stock market analysis.

Applied Logic Corp., Princeton, N.J., has installed a Digital Equipment Corp. PDP-10 computer in its AL/COM computer center which serves time-sharing customers "coast-to-coast."

Ohio Steel Tube Division, Cleveland Steel Co., Shelby, Ohio, has installed an automated order entry and invoicing system utilizing the Frigid 2201 Flexovriter, with double auxiliary tape punch.

Sient Inc., Houston, has ordered an MCR Communications Computer Installation to serve in its 14 offices located in Texas, Louisiana, Arkansas, and Tennessee.

The Family Security Insurance Co. of America, Fort Worth, Texas, has purchased a Univac 9200 computer system for use in

payroll, field accounting, life registers, insurance statistics, and other applications.

DuPont of Canada, Ltd., Montreal, Ontario, has ordered a GLE-8, computer-based system from Digital Equipment of Canada, Ltd., for on-line analysis of data from laboratory gas chromatographs. A second DEC computer will be interfaced to the system to combine the data from the chromatographs and present an overall analysis.

The International Monetary Fund and the World Bank have installed a Burroughs B5500 electronic computer system valued at \$1.2 million at their newly established Joint Computer Center in Washington, D.C. The unit will be used to automate the normal business management functions, to support operations research and statistical needs, and to facilitate information retrieval.

The Cleveland-Cliffs vessel S.S. Cadillac has ordered an integrated control system for the automation of two main propulsion boilers that have been converted from coal to oil firing from the Bailey Meter Co. This will permit certification of the used for operation with a two-man watch. The system will be installed by the Manitowoc Ship Building Co., a Manitowoc, Wis., yard.

Recent orders and installations of Sperry Rand Univac 9000 series computer systems include: Kent City Council, Wash., has installed Univac 9200 computer system to be used for billing, budget preparation, payroll processing, and general accounting. The Texas Treasury Dept. has installed a Univac 9300 computer system to be used for processing and issuing all new issue and paid warrants, reconciliation, and bond and property inventory. Frederick Community Commission, Md., have installed a Univac 9200 to expedite tax billing, general accounting, and payroll processing. King's Foot Co., Lincoln, Neb., has ordered a Univac 9200 for delivery in April, to be used for general accounting functions. Universal Systems Institute, New York, has ordered a Univac 9200.

EDPeople on the move

Is Now	At	Was	At
Roby Blesing Vice-president and Manager Systems and Products Div.	Maxwell Laboratories, Inc. San Diego, Calif.	Chief Engineer Division Manager	Energy Systems, Inc. Palo Alto, Calif.
Lee McGraw Sales Manager	TriData Corp. Mountain View, Calif.	Marketing	Telegraph Corp. Stamford, Conn.
Daniel H. Shengold Manager	Analog Devices Cambridge, Mass.	Vice-president, Marketing	Philbrick/News Div. Telechry, Inc.
C. Matthews Dick, Jr. President	Business Equipment Manufacturers Assoc. New York, N.Y.	Vice-president, Marketing	A.B. Dick Co. Chicago, Ill.
William J. Bush, Jr. Senior Business Analyst Information Processing Department	Heliodyne Corp. Arlington, Va.		Control Data Corp.
William B. Moore Vice-president, Washington, D.C. Div.	Informatics, Inc. Sherman Oaks, Calif.	Chief, Reconnaissance Intelligence Data Handling Branch	U.S. Government Office Air Development Center
James McKenna Director of Marketing	Compumedic Controls Corp., New York	Manager Computer Leasing	Graphic Sciences
Herbert D. Lechner Vice-president, Federal Region Manager	Computer Usage Co., Inc. Washington, D.C.	Director of Navy Programs	IBM



L. McGraw



D.H. Shengold

Contracts

HUNTSVILLE, Ala.—Inter Tech Research Services, Inc., has been selected by Trans World Airlines to perform computer-related administrative operations for the airline's Nasa support facility at the Cape Kennedy Space Center.

CANOGA PARK, Calif.—Datacap Systems, a division of Datacap International Inc., a computer firm based in Salt Lake City, Utah, has awarded a contract in excess of \$500,000 to Decade Computer Corp., a subsidiary of Redcor Corp. The initial contract calls for delivery of 30 compact, desk-size computers.

REDWOOD CITY, Calif.—Amplex Corp. is delivering Model TMZ, a digital tape memory system, against a backlog of orders totaling more than \$1.5 million. Initial deliveries include units under a \$350,000 contract for 100 TMZs from Digi, Inc., Salt Lake City, Utah.

PAOLI, Pa.—Burroughs Corp. is being issued a \$1,040,559 fixed-price contract for production of modification kits for Teletype equipment by the Electronic Systems Division (Air Force Systems Command), L.G. Hanscom Field, Mass.

AUSTIN, Texas—Tracor, Inc., scientific research and instrument manufacturing company, has received a single subcontract from Avco Lycoming Division of Stratford, Conn., of \$7.2 million for the penetration aids program for the Minuteman II weapon system. Total value of the subcontract is expected to increase to approximately \$25 million.

MOORESTOWN, N.J.—The Data Communication Division of Ultronic Systems Corp. has negotiated an OEM agreement with National Cash Register for direct sale of Ultronic Series 1200 Data Pumps. Under the two-year agreement, Ultronic will supply Data Pumps to NCR systems. NCR will market the pumps under its name to users of NCR communications systems.

ANN ARBOR, Mich.—The National Air Pollution Control Administration (U.S. Department of Health, Education, and Welfare) has contracted for three Applied Dynamics "K-400 Exhaust Data Reduction Systems."

The K-400 analog hybrid system will provide computer printout of test results covering the pollution effects of automotive exhaust gases.

SOUTHFIELD, Mich.—The daily production status reporting, dealer invoicing, and accounting operations of the Shelby Automotive Co. have been contracted to Computer Services Corp. Shelby Automotive, an international manufacturer of performance cars, is internationally distributed, high-performance sports car.

OKAAROOK, Ill.—Executive Computer Systems, a data processing consulting, implementation, and leasing firm, has been awarded a five-year contract by Scripture Press Publications Systems design, programming, operations, and application development for the Wheaton, Ill., firm will be performed on IBM 360 at the ECI information center.

TELETYPE - COUPERS

(Buy - Month - Rental)
Lease - Supply
Paper - Tape - Ribbons

COMPUTER SOLUTIONS INC.,
80 Washington Ter.
East Orange, N.J.

(201) 978-6300 - (212) 348-1531

WHO SAVE PEOPLE DOPPEL
READ CLASSIFIED ADS?

2nd in its
field in
advertising
lineage...

1st in
frequency...

but lowest
in CPM...

it's

COMPUTERWORLD

2nd in Lineage
Computerworld is the only publication in its field, measured by total lineage in three consecutive months. Total ad revenue for December 1968, January and February, 1969 shows the leading computer-oriented publications.

1st in Frequency
Computerworld is the only weekly publication for the computer community... the only publication to keep pace with the fast-changing industry. And the only publication which allows you to get your work done with less time and cost.

Lowest in CPM
Computerworld's rate sheet up 30% in Jan. 1969, but circulation has gone up even more so we still offer you the lowest CPM of any computer-oriented publication. That's something to remember considering Computerworld's ad and circulation is now over 30,000 and still growing rapidly.

CIRCULATION GROWTH

Nov 68 12,000 Dec 68 17,000 Jan 69 22,000 Feb 69 26,000

MARKET FACTS
\$11 billion was spent in 1968 for digital equipment, peripheral equipment, software, supplies and supporting services. The 1969 expenditure is expected to rise \$12 billion. Most of this business comes from the users of 47,000 computer systems installed in the U.S. in 1968, custom, systems, systems managers and software staff personnel who the principal influence on existing brands to buy.

And what Computerworld offers for this market has helped others where our competition couldn't.

If you'd like more detailed information, contact our social representation or write: Herb Weiner, 80 Austin Street, Newton, Mass. 02459.

COMPUTERWORLD

BUY SELL SWAP

BUY-SELL-LEASE

Unit Record Equipment
Disc Packs

Computer Leasing

Michien Leasing Corp.
1814 South Main St.
South Bend, Ind. 46613
(218) 288-1431

COMPUTER ACQUISITIONS CO.

WANTS

■ COMPUTERS, ALL
■ UNIT RECORD
■ EQUIPMENT

(404) 526-2000 - 502-2015
ATLANTA, GA. 30327

SAVE 40% - 60% ON
FRIDEN FLEXOWRITERS
CURRENT MODEL - 2201

Programming and service arrangements furnished

Call (212) 673-9300
Ext. 18

International Office

AgData Inc.,
383 Lafayette Street
New York, N.Y. 10003

COMPUTER SERVICES
FOR AGRIBUSINESS

1. Custom Programming
2. Systems Analysis & Design
3. Data Processing
4. Software Franchises
5. Management Information Systems
6. Consulting

AgData Inc.
P.O. Box 1077, Davis, Calif.
95618
Area Code 916/756-1050

IBM

2. Second Generation Leases
3. 20-60% Off IBM Rental
4. 12-36 Month Leases

5. 1401's, 1440's, 1460's,
7070's, 7074's

SUMMIT COMPUTER
CORPORATION

785 Springfield Avenue
Summit, New Jersey 07901
(201) 273-8600

IBM Computer Systems and Punched Card Equipment Bought or Sold.

International Computer Equipment, Inc.

I-C-E, Inc.
1231 25th St. N.W.
Washington, D.C.
202-293-3010

See Ad On Page 3

FOR SALE

All types IBM
Unit Record
Equipment

026, 024, 082, 083
077, 085, 088, 402
407, 084, 108 & 047

TLW Computer Industries
Box 29763, Atlanta, Ga. 30329
(404) 451-1005

IBM MACHINES FOR SALE

024 - \$550; 026 - \$2000;
056 - \$400; 077 - \$400;
082 - \$1000; 083 - \$400;
084 - \$500; 402 - \$1100;
403 - \$1500; 407 - \$4700;
514 - \$1400; 515 - \$1800;
537 - \$4500; 602 - \$1800;
604/512/1900;

Disc Packs (1316) \$200; Bursler
\$400; Cardreader \$300; Verifiers
(404) 100; Panels 50¢ opt.

ALL DPCO.
106 Horshier
Willow Springs, Ill.
312-628-8154

FOR SALE

NCR
Magnetic Cassette Reader

Model 402-3

Under Service Contract
Presently in Operation

Contact: W. M. Sweet
First National Bank
Dayton, Ohio 45402
Phone: (513) 461-4400

IBM KEYPUNCHES

IMMEDIATE DELIVERY

At our plant we remanufacture all types of unit record equipment.

Universal Processing Corp.
228 Highland Parkway
Roselle, N.J. 07068
(201) 241-7422

WANTED

729 Model V Tape Drives

Major Company wishes to purchase four (4) 729 Model V Tape Drives for 1969 delivery. Please supply complete information, serial numbers, delivery date, and price. Shenandoah Life Insurance Company, P.O. Box 2421, Roanoke, Virginia 24010

Get A Jump On The News

Subscribe Today!!

COMPUTERWORLD

THE NEWSWEEKLY FOR THE COMPUTER COMMUNITY

Vol. 10 No. 13

Weekly Newspaper: Second-class postage paid at Boston, Mass.
April 7, 1969

Price: \$9/yr

Problem-Afflicted User Blames Manufacturer Misrepresentation

By Peter L. Briggs

NEWTON, Mass. A horror story of unexpected downtime, unexpected claims, poor support, and a manufacturer who was unwilling to stand up for its product, a computer user was told by a user of the machine.

The user, who is now suing the manufacturer on the basis that it would not disclose the names of the companies involved.

The situation involved, among other things, that the manufacturer's representatives were actually responsible for the actual computer system.

When asked about the amount of downtime which could be expected for this type of device, the user said that 10% of the time was required for the program to be up and running.

When asked about the amount of downtime which could be expected for this type of device, the user said that 10% of the time was required for the program to be up and running.

When asked about the amount of downtime which could be expected for this type of device, the user said that 10% of the time was required for the program to be up and running.

When asked about the amount of downtime which could be expected for this type of device, the user said that 10% of the time was required for the program to be up and running.

When asked about the amount of downtime which could be expected for this type of device, the user said that 10% of the time was required for the program to be up and running.

When asked about the amount of downtime which could be expected for this type of device, the user said that 10% of the time was required for the program to be up and running.

When asked about the amount of downtime which could be expected for this type of device, the user said that 10% of the time was required for the program to be up and running.

When asked about the amount of downtime which could be expected for this type of device, the user said that 10% of the time was required for the program to be up and running.

When asked about the amount of downtime which could be expected for this type of device, the user said that 10% of the time was required for the program to be up and running.

When asked about the amount of downtime which could be expected for this type of device, the user said that 10% of the time was required for the program to be up and running.

COMPUTERWORLD
THE NEWSWEEKLY FOR THE COMPUTER COMMUNITY
SIXTY AUSTIN STREET, NEWTON, MASSACHUSETTS 02460 • TELEPHONE (617) 332-9000

Yes, please send me COMPUTERWORLD for...

- ☐ 1 Year \$ 9.00
☐ 2 Years \$16.00 ☐ Bill Me
☐ 3 Years \$20.00 ☐ Payment Enclosed

AA

Name

Your Title

Co. Name

Address

City

Zip Code

Return to: COMPUTERWORLD 60 Austin Street, Newton, Mass. 02460

Please Circle 1 Number and 1 Letter:

YOUR TITLE AND/OR FUNCTION:

- A. Operational Management (management)
- B. Computer Professional Staff
- C. Corporate Officers
- D. Engineering Management
- E. Engineering/Scientific
- F. Production/Maintenance
- G. Sales/Marketing
- H. Other

COMPANY BUSINESS:

1. Mining or Construction
2. Manufacturer/Computer or Data System
3. Manufacturer/Other
4. Utility
5. Wholesale/Retail
6. Finance
7. Consultants/DP Services
8. Business Service (except DP)
9. Educational/Medical/Legal
10. Government/Military
11. Other

Part in Study OS Standard

Although representatives of the American Equipment Manufacturers Association were invited to participate in the study, they were not present. The study was conducted by a group of users of the system, who were asked to study the system and report on their findings.

The study was conducted by a group of users of the system, who were asked to study the system and report on their findings. The study was conducted by a group of users of the system, who were asked to study the system and report on their findings.

Magnetic tapes... Disc-packs...

BASF Computron Inc has several new openings for young, aggressive salesmen.

- Join the team which invented magnetic recording media.
- Sell an established product line whose quality is recognized world-wide.
- Opportunities exist in many geographical locations.
- Free Life and Major Medical Insurance plus Pension Plan.
- Salary plus incentive plus car and expenses.

We are seeking young, aggressive personnel with proven records of successful selling experience, preferably in the field of Data Processing Supplies or related products. Our company is situated in this most modern tape facility in the United States at Bedford, Massachusetts. Our parent company, BASF, West Germany, invented magnetic tape in 1934. No other company has as much technical experience in the field of magnetic recording media. Get in on the ground floor and grow with us. Opportunity is here. Send resume or call: Mr. R. E. Valle, Marketing Manager, Computer Products. Tel.: 617-271-4000.

BASF Computron Inc

Crosby Drive, Bedford, Mass. 01730
An Equal Opportunity Employer

The death of the ordinary engineer.

You remember him. He worked on a tiny part of a big project. And he never did find out what his contribution amounted to.

As far as we're concerned, he's gone the way of the brontosaurus.

We learned early. Back when we were small, each of our engineers had to get involved in everything. Design, development, manufacturing, marketing—everything. And being involved, they became committed. It's worked beautifully.

We make the best memory systems, stacks, plines, and printed circuits on the market. Plus a brand new Multi-Application Computer (MAC 16). In short, we're growing like a weed. So we need more engineers.

If you want to get involved, write to me—E. B. Gage—at 6201 E. Randolph Street, Los Angeles, California 90022. Better still, call collect. (213) 722-6810. Naturally, we're an equal opportunity employer.

LOCKHEED ELECTRONICS COMPANY
Data Products Division • Lockheed Aircraft Corporation



**To keep pace with the present,
we must anticipate the future.**

If you are an EDP Professional who has the kind of imagination we're looking for, we'll give you a job that will help turn your thoughts into future reality. You'll have a voice in a variety of projects to test your intellectual flexibility and a group of people to work with who speak your language.

We'll give you goals that are sometimes definite, sometimes vague, but always stimulating. And, we'll give you rewards and advancement commensurate with your skills.

Write to us if you've had experience in language processors, control systems, operating systems, utility systems, communications systems, micro-programming, sales or product planning.

Contact Mr. T. A. Beckett, Dept. CW-2, RCA Information Systems Division, Bldg. 202-1, Cherry Hill, New Jersey 08101. We are an equal opportunity employer.

RCA

SYSTEMS ANALYST PROGRAMMER

Aconada Aluminum Co., a growing factor in the aluminum industry is currently seeking a Systems Analyst-Programmer. The challenging position involves initial assignment in inventory control, order status and facility loading. The individual selected will work with others in analyzing, programming and implementing an entire system.

The ideal candidate is an accomplished Systems 360 programmer, has a degree and prior experience in the manufacturing area. Familiarity in data communications is an additional asset.

Our salaries, benefits and advancement opportunities are excellent.

Please send resume including salary history to B.J. Kamarrata, Industrial Relations Rep.



P.O. Box 1807, Terre Haute, Indiana 47806
An equal opportunity employer

ACM & Its Dollars -- Part 3

Is ACM Membership Really a 'Bargain'?

By Alan Taylor

In previous articles in this series we have considered the ACM's financial situation by comparing it with what it was supposed to be according to the budget. This may be, however, a little bit one-sided. The fact that the society's activities are not accurately reflected in its budgets is a condemnation of its administrative process. But the situation could be overlooked if it meant that the members were getting their money's worth. After all, societies are for members, not members for societies.

The point was very well put by ACM Treasurer Walter Hoffman in the emergency council in February, and in earlier reports. He said: "It is clear the ACM is one of the biggest bargains imaginable. If we had checked last May, we should have seen that members were getting \$35 worth of services."

With this in mind, the next phase of the ACM investigation was to see what the members were getting.

Dues Kept at \$25

Membership in the future apparently will provide for an annual fee of \$25, membership in a chapter, and two free periodicals, the *Communications of the ACM* and either the *Computing Reviews* or one still-to-be-launched periodical, *Survey and Tutorial Journal*. As far as the average member is concerned, these are the membership benefits.

Naturally, ACM does do other things. It subsidizes new chapters (with a maximum of \$100), and it helps special interest committees for about a year until they are able to form special interest groups. But these are not membership benefits as

such, no matter how worthwhile. They benefit groups of members. In some cases even the conferences and forums apparently will be closed to ACM members in good standing.

It may be that all this eventually does help the general membership. But it certainly isn't a membership benefit.

To evaluate what the membership really gets, we then checked to find out the cost of the *Communications*, the cost of *Computing Reviews*, and how much support the member gets through his local chapter.

Communications Costs \$30,300

Evaluating the cost of the *Communications of the ACM* is not difficult. The financial reports showed editorial salaries,



books, etc., and also showed the income that the society obtains from the *Communications*. The income is quite substantial, both in terms of advertising and in terms of sales to nonmembers.

According to ACM figures, the cost to the society of *Communications* is about \$10,300 annually. Splitting this between the members comes to about 50 cents per member.

Similarly, evaluating the cost of *Computing Reviews* is, on the surface, fairly easy. But there is a problem involved

because *Computing Reviews* recently became a monthly. The change from quarterly publication was based in large part on support given by a National Science Foundation grant. It is currently still monthly, even though that support has now been withdrawn. (Also as a result of the grant, the Journal added a number of features, including coverage of doctoral theses, etc., which may be worthwhile to the membership, but may not.)

However, it appears that the *Computing Reviews* in 1967-1968 cost the society \$52,391, or the average member about \$2.60. If the National Science Foundation subsidy were not included, the cost would be about \$86,391, or \$4.32 per member.

Chapter Aid

The only other substantial benefit that a member receives is in the support given by his chapter. This is part of a large budget entitled "Chapters and Committee Aid." On investigation, however, it turns out that the committee aid is apparently substantially more expensive than chapter aid. Indeed, chapter aid amounted to only \$2320 all told for the year 1967-1968. Evaluating this, the benefits to the member as a result of becoming a member are about 12 cents to his chapter.

Figures Show No Bargain

If, indeed, membership in the ACM is a genuine bargain, then some new figures will have to be produced to show it. The current financial reports indicate that over 80% of the dues, plus the profits from the joint computer conferences and

	\$25 Fee	
Chapter Aid	\$0.02	\$4.94 Total
Communications	\$0.50	Identifiable
Computing Reviews	\$4.32	Members Benefits

ACM Membership Benefits as Recorded in ACM Financial Figures

other activities (which this year amounted to \$6 per month), are going into administrative costs and subsidizing activities in which a member may not wish to participate and from which he does not directly benefit.

COMPUTERWORLD
Advertising Sales Offices:

New York City:

Don Fagan
Grant Webb & Company
309 Madison Ave.
New York, N.Y. 10022
(212) 646-7550

Midwest:

Dennis Collins
Grant Webb & Company
838 N. Michigan Ave.
Chicago, Ill. 60601
(312) 356-8017

San Francisco Area:

Bill Hensley
John E. Thompson Co.
1111 Hearst Bldg.
San Francisco, Calif. 94103
(415) 362-8547

New England:

R. Zigel
COMPUTERWORLD
60 Austin St.
Newton, Mass. 02160
(617) 332-5600

Los Angeles Area:

Bob Byrne
Sherwood/Byrne Assoc.
1017 N. La Cienega Blvd.
Los Angeles, Calif. 90069
(213) 457-4221

Elsewhere:

Neal Wilder
National Sales Manager
COMPUTERWORLD
60 Austin St.
Newton, Mass. 02160
(617) 332-5600

ADVANCED PROGRAMMERS

Advance Faster In Information Science--
The Growth Field Of The 70's

Experienced professionals can give their career added thrust by applying their talents to new growth applications of automated information handling—library science, publishing, information networks, large data banks, information retrieval, etc.

INFORONICS

a growing leader in the know-

ledge industry has immediate opportunities for its current projects. College and some significant machine-language programming are the requirements we are seeking.

Please send resume to Miss Joan L. Robinson, Personnel, or phone 817-899-1086 for an appointment.

INFORONICS, INC.

146 Main Street
Maynard, Massachusetts 01754
(near Concord)
an equal opportunity employer

EDP PERSONNEL MANAGEMENT

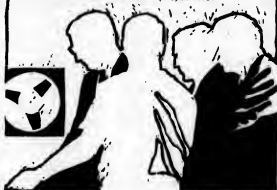
WCP...

A total recruitment concept with proven results for EDP professionals.

In a sense we are people matchers. We take on a company's recruitment requirements as a marketing problem. In this case the product is the company itself. We research the product, determine the best way to sell it, and then selectively choose and develop ways to reach the market. Newspapers, trade magazines, radio—whatever will work.

The man who buys the product is the key. We staff the best possible EDP people in the best situations. Because of the varied clients we represent in many industries, we offer a potential employee a choice—not a chance. We offer challenge and growth to both corporations and the people they hire. It is not hardware or software that makes an organization grow. It is the person, the exceptional person who pushes the right buttons. If you have the buttons, or would like to push them, turn to WCP, a recruitment agency with a new dimension for corporations and individuals looking to their future.

120 Montgomery Street, San Francisco, California 94102 (415) 981-1131



Carthus Memories, Inc. is a leading manufacturer of 5 1/4 inch floppy disks. Our disks are available in both 100 and 200 microsecond formats. We also offer a complete line of disk drives and controllers. For more information, contact us today.

Carthus Memories, Inc.
 10000 Carthus Drive, Suite 100
 San Jose, California 95138
 (415) 261-1000